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DOCUMENT RESUME

ED 069 425 PS 006 167

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TITLE	Overview Snapshot Observational Technique (OSOT): Administration Manual Experimental Research Form.
INSTITUTION	Florida Univ., Gainesville. Coll. of Education.; Florida Univ., Gainesville. Inst. for Development of Human Resources.
PUB DATE	Jul 72
NOTE	57p.; Revision
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Classification; *Data Collection; *Early Childhood; Educational Programs; Evaluation; *Information Dissemination; Instructional Materials; Interaction; *Manuals; Psychomotor Skills; Reliability; *Student Needs; Validity
IDENTIFIERS	OSOT; *Overview Snapshot Observation Technique

ABSTRACT

Overview Snapshot Observational Technical (OSOT) is specifically designed to allow users to obtain both pictorial and categorical data related to the transactions in context component of early childhood (prekindergarten and kindergarten) educational programs. Such information is especially useful in operations calling for descriptive evaluation. Osot's major focus is upon the student--the student in relation to others, to places and to things--in the classroom environment. The five dimensions evaluated by OSOT include: (1) the student's location in the classroom, (2) his interactions with others, (3) his encounters with instructional or play material, (4) his attention to others and/or his involvement with instructional materials, and (5) the strenuousness or intensity of his motor activities. The OSOT procedures, which requires the observer to collect notational data in a graphic-like framework not only enables the user to describe visually the transactional component, but also enables him to categorize the pictorial data, in ayn suitable manner, at any convenient time in the future. This manual contains descriptions of the five OSOT dimensions, the OSOT notational system, the OSOT data-collection procedures, and the OSOT information-presentation procedures. Reliability and validity issues are discussed and examples of possible data-collection, coding, and information forms are provided. (Author/CK)

ED 069425

INSTITUTE FOR DEVELOPMENT OF HUMAN RESOURCES
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OVERVIEW SNAPSHOT OBSERVATIONAL TECHNIQUE (OSOT)

Administration Manual
Experimental Research Form

Alan R. Coller
July 1972[1]

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[1]A revision of the manual of April 1970, written when the author was with the Center for Instructional Research and Curriculum Evaluation (CIRCE), University of Illinois at Urbana-Champaign.

OVERVIEW SNAPSHOT OBSERVATIONAL TECHNIQUE (OSOT)

SUMMARY STATEMENT

OSOT is specifically designed to allow users to obtain both pictorial and categorical data related to the transactions in context component of early childhood (prekindergarten and kindergarten) educational programs. Such information is especially useful in operations calling for descriptive evaluation. OSOT's major focus is upon the student--the student in relation to others, to places and to things--in the classroom environment. The five dimensions evaluated by OSOT include: (1) the student's location in the classroom, (2) his interactions with others, (3) his encounters with instructional or play material, (4) his attention to others and/or his involvement with instructional materials, and (5) the strenuousness or intensity of his motor activities.

The OSOT procedure, which requires the observer to collect notational data in a graphic-like framework not only enables the user to describe visually the transactional component, but also enables him to categorize the pictorial data, in any suitable manner, at any convenient time in the future.

The user may exercise his option not to categorize the notational data, or he may decide not to employ all five OSOT dimensions, or he may decide to add dimensions to those already described in this manual. The user, also may elect to re-define the individual categories of OSOT's five dimensions. He may also employ other instruments in conjunction with OSOT.

OSOT's flexibility, which was intentionally introduced, permits the user to obtain observational information which reflects better unique local conditions and which makes sense both for the particular program and for the specific objectives of the evaluation or the research endeavor.

The manual contains descriptions of the five OSOT dimensions, the OSOT notational system, the OSOT data-collection procedures, and the OSOT information-presentation procedures. In this latter section we have provided a sample series of OSOT observations which can be employed to describe visually a-day-in-the-life-of-a-class. Reliability and validity issues are discussed and examples of possible data-collection, coding, and information forms are provided.

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OVERVIEW SNAPSHOT OBSERVATIONAL TECHNIQUE (OSOT)[1]

Administration Manual
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BACKGROUND INFORMATION

The Overview Snapshot Observational Technique (OSOT), which may be used either independently or in conjunction with other classroom observational procedures, has been designed to enable users (including members of the teaching staff) to obtain some relatively objective descriptions of the transactions in context[2] component of early childhood educational programs. OSOT typically will be used by a single observer according to a predetermined schedule and rate that should make sense for the particular program evaluation. Each subject, or each cluster of subjects (adults as well as students), are observed in a form resembling a snapshot, that is, the observation is instantaneous.[3] If the "observation" lasts more than a few seconds, such time normally serves only to clarify what the subject was doing at the first moments of observation. After data pertinent to a particular child is recorded (accreted), the observer (O) begins to look at the behavior of another child. Such a procedure has been referred to as the point-time sampling method (Wright, 1960).

Ideally, observation and recording time for any one subject should not exceed ten seconds. For a relatively experienced observer, total OSOT time should be about two minutes for an average sized prekindergarten and about four minutes for a kindergarten class of average size. Very often, the OSOT observation will be completed in less time.[4]

OSOT is designed to focus upon a subject, the student in particular, in relation to people, to places, and to things in the classroom environment. OSOT may be employed to examine what the subject is doing: To note where he is

[1]OSOT is an adaptation of the Location Activity Material Inventory (LAMI) developed by Harold Wilensky (1962) while at the Institute for Development Studies.

[2]Robert Stake (1967) employs the term transactions (as we shall do) to refer to the many encounters between students, between students and teachers, between students and instructional materials, etc. Transactions in context provides a view of the context within which the encounters take place (Coller, 1972a).

[3]In some special cases the observation is more analogous to a brief film strip.

[4]In general, field testing tends to confirm these time estimates (Coller and Ahlenius, 1970).

located in the classroom (but, not necessarily why he is in that location); to identify with whom he is interacting (but, not necessarily what the interaction is about); to classify the kinds of instructional materials with which he is occupied (but, not necessarily how he is using the materials); to determine apparent attention to others and/or involvement with instructional or play materials (but, not necessarily the degree of attention or involvement); and, to rate the "strenuousness" or intensity of his motor activity (but, not necessarily to identify the specific kinds of motor activity). Despite its many limitations, OSOT should more than readily fulfill the descriptive role for which it is intended. And, as previously noted, other instruments may be employed in conjunction with OSOT to collect data not fully examined by the OSOT dimensions.

As will be determined shortly, both category/discrete and category/interval ratings data systems are employed to collect information for the OSOT dimensions (Coller, 1972c).

The user is first required to collect data according to a relatively fixed[5] graphic-like notational system (see the section on the OSOT notational system) and, only later--when instructional time will not unduly be interfered with--should he (or others) translate the resulting pictorial data into the more statistically useful categorical[6] "tallies." (For a discussion on different recording techniques, see, Coller 1972b.) This OSOT procedure serves several important functions. For one, the pictorial data itself may be utilized in evaluation reports to describe visually the physical classroom environment (the context) as well as the transactional aspects of the class during different periods of the day or for select periods over a semester. A day-in-the-life-of-a-class, visually displayed by a sequenced series of OSOT observations--notational snapshots, if you will--appears to be an attractive and useful way by which classroom transactions can be described. (See, for example, the series of OSOT observations presented in the Appendix.) Changes over time, which can be represented pictorially, likewise appears attractive and meaningful.

The OSOT procedure also allows the user to categorize the pictorial data, in any suitable manner, at any convenient time in the future--even years later. The user may also elect to re-define, the individual categories associated with OSOT's five dimensions. Indeed, the user may, at his option, decide not to categorize the notational data (he may only be interested in the pictorial description), or he may decide not to employ all five OSOT dimensions, or he may decide to add dimensions to those we will soon descirbe. However, the user may ultimately decide to employ OSOT, one should be aware that categorical data is evaluationally useful for describing "trends-over-time," for comparing the transactional components of different classrooms; for establishing standards; and, in general, for examining relationships between subject characteristics, classroom transactions, environmental contexts, and educational objectives.

[5]As noted, the user may make changes in the notational system.

[6]With only one exception, OSOT categories are nominal scales. If desired, the ratings of motor activity may be treated as if on an ordinal scale.

Another important function served by the OSOT procedure is that of reducing the training time that an observer ordinarily must undergo. It requires, as a rough estimate, only about half the effort to learn the OSOT notational system and the few OSOT categories which must be memorized prior to observing than it does to learn all of the OSOT categories.[7] Also, in most instances, the use of the OSOT notational system would reduce slightly the total time required on the part of O to collect data. However, this is dependent upon how many of the dimensions and how many categories within each dimension the user intends to have coded.

In general, the OSOT procedure, intentionally flexible, permits the user to obtain observational information which (1) reflects better the unique local conditions, and (2) which makes sense both for the particular educational program and for the specific objectives of the evaluation. In addition, the OSOT procedure should shorten the initial observer training time.[8]

Essentially, OSOT is designed to describe publicly observable behavior and the categorical descriptions reflect this intent. We have, however, made a number of assumptions about what certain behavioral acts mean. These are inferences[9] which must be reconciled,by the user, with reality. There will be many instances when OSOT observations will make sense only when subjective impressions and other types of data supplement the OSOT data.[10] Someone must tell the audience, if the high activity level of a particular classroom is caused by the style of the instruction, or by children with behavioral

[7]If one could even remember them all is a moot question. We have described in this manual over sixty distinct OSOT categories. If alternative systems of categorizing the notational data are employed, the total number of OSOT categories could come close to 100.

[8]When OSOT is compared to LAMI, as developed by Wilensky (1962), we find that with OSOT: (1) more discrete classifications have been established; (2) different types of data are collected, e.g., attentional and/or involvement; (3) other types of information may be ascertained, e.g., sociometric; (4) initial observer training time is less; and (5) the user may modify the OSOT categories to fit better his particular needs.

[9]Inferences often are desirable. If, for example, letter-identification scores are positively and highly related with the number of times students were observed with, say, the Alphabet Board (a possible special material category), it might well be appropriate to infer that the students learned something about letters in their transactions with the identified material. A decision which could result from such an analysis might be to induce children to spend more of their time with the seemingly critical materials and less time with other types of materials.

[10]See the appendix for examples of a running narrative which accompanies the OSOT coded diagrams.

problems, for example. Are certain categories of materials excessively used in a classroom because other kinds are not available? Have children been requested by the teacher or otherwise persuaded by her to use certain areas in the classroom? Situations like those mentioned above usually occur and the teacher and/or evaluator should feel free and even obligated to offer their judgments in interpreting for their audiences why certain results obtained.

In sum, it is assumed that information derived from the use of OSOT will be of value for teachers, evaluators, project directors, researchers and the many audiences for which the observation may ultimately be intended.

Teachers will be able to utilize the information for classroom management; evaluators can use the OSOT to describe the transactions in context components of classrooms; project directors may employ the information for planning in-service training; researchers can use the data to establish relationships and to examine their experimental control over the environment; and, audiences, whomsoever they may be, of course, will become better informed--will better "understand" the program.

The remainder of this manual is devoted to descriptions of (1) the five OSOT dimensions, (2) the OSOT notational system, (3) the OSOT data-collection and coding procedure, and (4) the OSOT information-presentation procedure. Reliability and validity issues are discussed and examples of possible data-collection, coding, and information presentation forms are provided.

OSOT DIMENSIONS

OSOT has been designed to provide a relatively objective recorded description of what subjects, particularly students, do in the classroom. In short, OSOT describes the transactions in context component--the many encounters the student has with others and with materials in a given environment. Dimensions of student encounters evaluated by OSOT include:

1. The student's geographical location in the classroom;
2. his encounters with instructional material;
3. his interactions with others--his social encounters;
4. his attention to others and/or his involvement with instructional and/or play materials; and,
5. the strenuousness or intensity of the student's motor activity.

The Five OSOT Dimensions

1. LOCATION. The presence of the subject, at the time of the observation, in one of several geographical areas by which the classroom can logically be separated, constitutes his location response. The locations should correspond

with the distinct areas by which a particular classroom can be separated logically by the local educational staff. In sum, the number and types of location categories should be determined locally and should make sense for the particular classroom and for the specific purposes of the observation.

Below, we have listed some locations which we think are basic to most classrooms. We have also included in the list additional locations which may make sense only for relatively few classrooms. The user may, at his option, use all, some, or none of these categories. He may also elect to combine or make these categories more discrete. And, the user may, depending upon local circumstances, designate other categories. In any event the categories ultimately employed should make sense for the local situation.

Locations, which may be designated either because of structural separation (e.g., a screened off play kitchen area) or because of functional separation (e.g., a block area, so designated because it is adjacent to the block storage shelves) may include the following:

(0) undeterminable (the subject was on the border line of several locations)
(1) administrative areas
(2) art and painting area (this category is sometimes two distinct areas)
(3) audio-visual area (includes listening centers, programmed machine areas, etc.)
(4) bathroom area
(5) block shelves and adjacent floor area
(6) book corner
(7) clothing area (refers to an area in which outdoor clothing is kept)
(8) chalkboard area
(9) doll corner
(10) exercise and gym equipment area (this is often the same as the open area)
(11) game and learning materials area
(12) kitchen and sink area (refers to real kitchen area)
(13) lesson area
(14) mammal area (refers to live mammals)
(15) music corner
(16) nature corner (refers to displays from nature, including plant-life, rocks and minerals, non-living mammals, and other forms of animal life)
(17) open area
(18) play-kitchen area
(19) science corner (refers to storage/display areas for magnifying glasses, magnets, etc.)
(20) storage area
(21) table area
(22) transportation toy shelves and adjacent floor area
(23) woodworking area
(24) miscellaneous areas (walkways, etc.)

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Occasionally, it may be necessary to combine categories, e.g., when the same floor area is employed for both block building and transportation toy play. Sometimes it may be necessary to treat a basic category as being composed of more than one category. For example, when there are two distinct open areas we may identify one open area as 8a and the other as 8b, etc. (See Figure 1 for a diagrammatic picture of a classroom depicting locations.)

OSOT's graphic-like notational system does not require the observer to memorize any of the above listed locations prior to observing. Briefly, the OSOT notational system requires the observer to sketch a particular subject symbol on a form containing the classroom layout, predrawn to scale. Later, an overlay containing lines indicating selected locations is placed upon the classroom layout, and location responses are determined. In general, a location response is indicated when a subject symbol falls within the confines of a particular location. (See the Data Collection section for a more detailed explanation of how the diagram is to be drawn.)

2. INSTRUCTIONAL AND/OR PLAY MATERIALS. The instructional materials category is primarily concerned with identifying the type of instructional materials (animate or inanimate) with which the subject is occupied at the time of the observation. The criterion for determining which type of materials a child is using is either (a) physical contact with, or (b) direct perception or (e.g., staring at, listening to, smelling) the material. Simultaneous use of more than one type of material should be recorded.

Below we have described thirty-one categories by which the instructional materials dimension can be classified. Once again the user has the option to modify the suggested categorical system to describe better the particular local situation. The user may decide that a category is too inclusive or that a category is not inclusive enough. Also materials which represent a special concern of the user may separately be identified and treated as a distinct category, e.g., the Alphabet Board which, under ordinary circumstances, could be treated as a sequenced game.

Possible OSOT instructional material categories include:

(0) (UN) Undeterminable indicates that the observer was unable to classify the material for any reason.

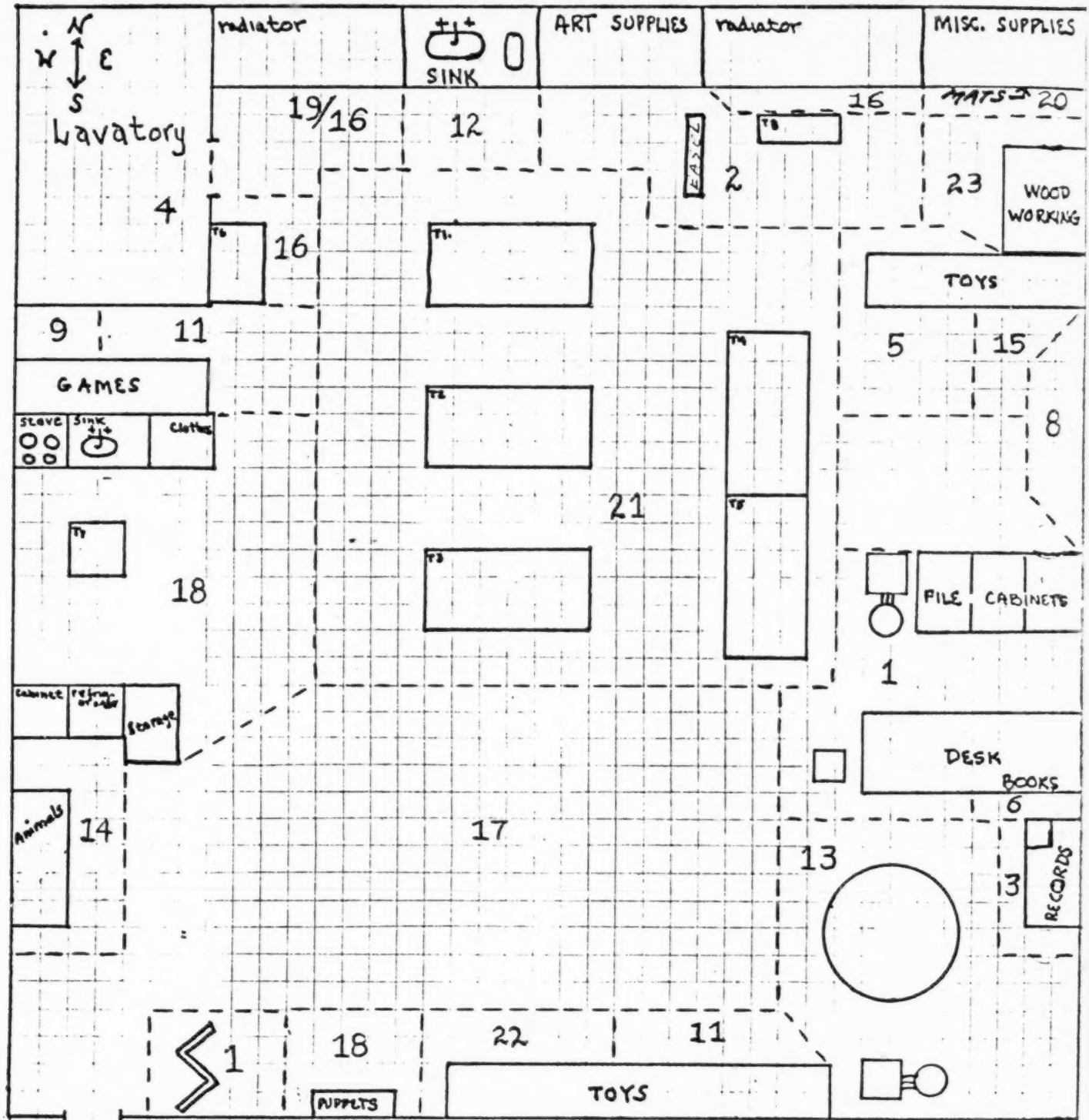
(1) (ANI) Animal Life and Impedimenta includes all animal life and accessory equipment (e.g., amphibians, aquarium, birds, cages, fish, insects, mammals, reptiles, terrarium, etc.).

(2) (ART) Art Materials includes aprons, brushes, clay, chalk, crayons, drying rack, dressmakers pins, easels, glue, markers, paint, paint containers, paper cutter, paper, paste, pipe cleaners, plaster, Play Dough, yarn, etc. In general, all materials being employed during the creative process, e.g., soap when used for soap carving.

(3) (A-V) Audio-Visual Equipment includes cameras, earphones, jacks, listening posts, phonographs, programming machines, projectors, recorders, screens, tape players, televisions, video-tape recorders, etc.

-6A-

FIGURE 1


N
W
E
S
Lavatory
radiator
SINK
ART SUPPLIES
radiator
MISC. SUPPLIES
19/16
12
16
HATS
20
EASEL
2
23
WOOD WORKING
4
16
TOYS
9
11
5
15
GAMES
stove
Sink
Clothes
8
21
18
FILE CABINETS
1
cabinet
refrig or cabs
storage
DESK
BOOKS
6
Animals
14
17
13
3
RECORDS
1
18
22
11
PUPPETS
TOYS
PLACE:
DATE:
OBS:
TIME:
ELAPSED TIME:
OSOT No.:
ACTIVITY:

(4) (BKS) Books may include "talking" and "musical" books as well as materials normally considered to be books. Coloring books or dot-construction books are not to be treated here as books.

(5) (BLD) Building Materials include blocks, boards, Building Boulders, Erector sets, Lego sets, Lincoln Logs, etc. In general, any and all types of interlocking or non-interlocking materials employed in the construction of structures.

(6) (COM) Communication Devices includes delayed speech equipment, inter-coms, talking toys, telephones, walkie-talkies, etc. (Talking books are not included in this category.)

(7) (CON) Construction Materials includes carpenter's workbench, glue, hammers, hook and eyes, nails, nuts, sandpaper, saws, screwdrivers, screws, vises, washers, wood, workhorses, etc. In general, all materials used for the construction of functional rather than aesthetic products.

(8) (DOL) Dolls as a category includes beds, blankets, bottles and nipples, chests, clothing, dishes, dolls (human, animal, and imaginary), doll carriages,and other miscellaneous accessories.

(9) (DRM) Dramatic Play Materials includes artificial foods, clothing, costumes, hair brushes, hats, and play cooking utensils, dish cupboard, dishpans, housekeeping sets, jewelry, mirrors, play-houses, tables, refrigerators, sinks, stoves, washing boards, etc.

(10) (FLM) Films includes films and video-tapes.

(11) (FOO) Food includes all foods, solid or liquid, or "goodies."

(12) (FRN) Furniture,Classroom includes benches, bookcases, bulletin boards, chairs, filing cabinets, mobile carts, refrigerators, sinks, stoves, partitions, shelves, tables, etc.

(13) (FSI) Food Service Items includes baskets, bibs, bowls, cups, dishes, forks, glasses, knives, mats, napkins, pitchers, straws, tablespoons, teaspoons, trays, etc.

(14) (HKP) Housekeeping Equipment includes brooms, brushes, cheese-cloth, cleanser, clothes racks, dustpans, first aid cabinet, mirrors, mop, oil cloth, pails, rags, soap, sponges, tissues, toilet paper, towel container, towels, etc.

(15) (MUS) Musical Instruments includes all items commonly treated as musical instruments, e.g., autoharp, harmonicas, drums, horns, whistles, etc., as well as materials being used to create "music," e.g., sticks and pot, spoons, saw, etc.

(16) (NAP) Napping Materials includes cots, blankets, mats, pillows, rugs, etc.

(17) (NSQ) Non-Sequenced Instructional Materials include all educational type materials which have vague objectives and have not undergone rigorous pretesting. Some examples may be alphabet blocks and posters, color cones, coloring books, dot-construction books, flannel boards, flash cards, lacing boots, lotto games, nesting cups, pictures, photographs, posters, puzzles, sensory materials, sorting materials, etc.

(18) (PE) Play Equipment includes balancing beams, chinning bars, climbing structures, handball court, ladders, kegs, packing boxes, planks, platform and steps, punching bags, rocking board, sawhorses, slide, swings, etc. In general, equipment used in the development of large muscles.

(19) (PLT) Plant Life and Impedimenta includes all plant life and accessory equipment (e.g., flowers, flower pots, gloves, gardening tools, peat moss, sticks, watering cans, etc.).

(20) (PLY) Play Supplies includes psychomotor play materials and all items not then being employed in art, sand, or water play, e.g., balls, bean bags, brushes, hoops, funnels, egg beaters, jump rope, scoops, soap, etc.

(21) (REC) Records and Tapes includes all forms of recording auditory-based stimuli, e.g., discs, records, tapes, wire, etc.

(22) (SCI) Science and Nature Materials includes all types of nature collections, egg hatchers, kaleidoscopes, lenses, magnets, magnifying glasses, prisms, preserving fluid, pulleys, measuring devices, thermometers, weights and scales, etc. It also includes any material being employed in a scientific "experiment," e.g., a glass being held upside down in water to demonstrate displacement, etc.

(23) (SEQ) Sequenced Instructional Materials includes all educational type materials which have specific terminal objectives and have undergone rigorous pretesting. Some examples may be Color-Rhyming Lotto, Concept Builders, Distar, Language Lotto, Frostig Materials, Matrix Games, Peabody Language Program, Perceptual Learning Puzzles, Puzzle Pyramids, etc. Also include here appropriate teacher-made or teacher-adapted sequenced materials.

(24) (SND) Sand and Materials includes equipment such as rakes, sand, sand boxes, scoops, shovels, sifters, etc.

(25) (SUP) School Supplies, Miscellaneous includes adhesive tape, fasteners, flags, envelopes, hole punch, labels, label maker, paper clips, rubber bands, scizzors, stapler, stationery, thumb tacks, tape, wastebasket, window stick, yardstick, etc.

(26) (TOY) Toys, General as a category includes all toys not included in other categories, e.g., balloons, chime balls, jacks, jack-in-the-box, kites, miniatures (animals, cowboys, soldiers, etc.), push and pull toys (non-transportation), robots, tops, etc.

(27) (TRN) Transportation Toys include all relatively small conveyance-type toys which are not typically employed to transport children (e.g., airplanes, boats, buses, cars, carts, fire-engines, rockets, sleds, tractors, trains and tracks, trucks, etc.).

(28) (WHL) Wheel Equipment includes all large conveyance-type toys used to transport children (e.g., bicycles, dumptrucks, fire engines, Kiddie Kar, tricycles, wagons, wheelbarrows, etc.).

(29) (WTR) Water Play Materials includes bubble bath items, cups, egg beaters, soap powders, water, water containers, etc.

(30) (NO) No Materials indicates that the subject was not utilizing any material.

In the event that some materials can be classified as belonging to more than one category, the observer should classify the material according to its functional use at the moment of observation, e.g., play pots which normally are dramatic play equipment may be used as drums, and thus should be classified as a musical instrument; blocks being employed as a car should be classified as transportation toys.

While it is not absolutely necessary for the observer to memorize all of the above described categories prior to observing, he should at least be familiar with the categories and should consciously attempt to memorize the codes over the time he is observing. We suggest that until the observer has memorized all the codes that he should, on a separate page, identify those materials whose code he is uncertain of by name, assign it a number code, and place that number in the appropriate material symbol. Such a procedure avoids the necessity of waiting to observe a class until all the codes are memorized. Note also that the two and three letter codes should serve as a mnemonic for the category name.

3. SOCIAL INTERACTIONS. If a subject, at the time of observation, engaged in talking or listening, or if he was in physical contact with, or shared a toy with others, or if he was actively participating in a small or large group activity, or if he is in very close proximity to a group and it was intended he should be part of that group, he is to be classified as being in social interaction with others.

Again, it should be noted that the number and types of interactional categories should be determined locally and should make sense for the particular classroom and for the purposes of the observation. We have developed below a general system which will probably be appropriate for most descriptive needs. Other systems are also discussed. The general system includes the following categories:

(0) No social interaction
(00) No social interaction while in group (S must appear not to be responding to stimuli emitted from the group or elsewhere)
(1) Student-student (one other)
(2) Student-teacher (where "teacher" is defined as consisting of the teacher and/or supporting teaching staff)
(3) Student-visitor (where "visitor" is defined as consisting of either observers, parents, supervisors, or administrators, etc.)
(4) Student-student within any sized group
(5) Student-group size I (consisting of more than 2 but less than 8 students)[11]
(6) Student-supervised group size A (consisting of a teacher(s) and more than 1 but less than 8 students)
(7) Student-group size II (consisting of more than 7 but less than 12 students; teachers may also be present)
(8) Student-group size III (consisting of more than 11 but less than 16 students; teachers may also be present)[12]

[11]A number of recently developed educational products e.g., Color-Rhyming Lotto (Coller and Gotkin, 1969) and Language Lotto (Gotkin, 1967) limit the number of participants to six players and a game leader. The range of group size I reflects the fact that the game leader may also be a student.

[12]Many prekindergarten classes are limited to about 15 students. The actual ranges can be modified to suit the local situation.

(9) Student-group size IV (consisting of more than 15 students; teachers may also be present)
(10) Teacher-teacher
(11) Teacher-visitor

The user, at his option, may employ some of the following categorical systems in addition to, or instead of, the system outlined above. Other systems may likewise be developed by the user.

System A. Set up equal categorical bounds for the number of students with which the subject is interacting. For example,

(1) Student-student (1-2 others)
(2) Student-student (3-4 others)
(3) Student-student (5-6 others)
.
.
.
(n) Student-student (n-n+1 others)

System B. Set up categories which incorporates the sex of the students. For example,

(1) Student-student (1 other, same sex)
(2) Student-student (1 other, different sex)
(3) Student-group size I (all students, all same sex)
(4) Student-group size I (all students, mixed sex)
.
.
.
(n) Student-group size IV (mixed sexes)

System C. If information is desired about social interactions between students in integrated classes, System C may be appropriate. For example,

(1) Student-student (1 other, same race)
(2) Student-student (1 other, different race)
.
.
.
(n) Student-group size IV (mixed races)

System D. Any combination of the above described systems would be appropriate. For example,

(1) Student-student (1 other, same sex, same race)
(2) Student-student (1 other, same sex, different race)
(3) Student-student (1 other, different sex, same race)
(4) Student-student (1 other, different sex, different race)
.
.
.
(n) Student-group size IV (mixed sexes, mixed races)

As in the case of the location dimension, the observer need not be concerned, prior to observing, with memorizing the social interaction categories. Here too, the social interaction responses are determined from the OSOT notational data. Indeed, the many ways by which the social interaction dimension can be categorized almost prevents the observer from committing them all to memory.

Note also, that sociometric information may be obtained by keeping track of the identity of the individuals with whom the student interacts over time. Such information may be analyzed by a variety of factor-analytic techniques.

4. ATTENTION. The attentional dimension has been designed primarily as a means of indicating whether or not the subject is attending to others and/or if he is or is not involved with instructional and/or play materials. As used here "attention" refers to the process of taking notice of and/or of actively responding to an identifiable set of persons. "Involvement" includes taking notice of and/or interacting with a given set of materials even when the materials are used to record human behavior, e.g., video-tapes, records, etc.

By definition, attention and involvement require a narrowing of the range of persons or objects with which the subject interacts. Consequently, when the subject attends to or becomes involved with a given set of stimuli there is another larger set of stimuli with which the subject can neither attend to nor become involved with. Because of the complications inherent in such a situation, the focus of this coding dimension is mainly upon attention and involvement rather than upon inattention and non-involvement. We are concerned with inattention and non-involvement only when such behavior is dissonant with what is expected of the subject.

As a process, attention is non-observable, however, it can be inferred from observable behaviors. Some of these behaviors are indicated in the category discriptions below.

The four categories used in the assessment of the attentional dimension include:

(0) Undetermined. Used if, for any reason, the observer cannot properly evaluate (infer) the subject's phenomenal field.

(1) Proximal Attention or Involvement. The subject demonstrates apparent attention to a person in close proximity by touching, looking, listening, talking, or appropriate responding. Apparent involvement with proximal materials is demonstrated by scanning, listening, manipulation, or active play-behaviors.

(2) Distal Attention or Involvement. The subject demonstrates apparent attention to and/or involvement with an identifiable distal stimulus by looking, listening, or appropriate responding. Typical stimuli might be other persons or stimuli produced by means of audio-visual equipment.

(3) Apparent inattention or non-involvement. Inattention and/or non-involvement is only indicated when the subject is not taking notice of or is not responding to a source of stimulation with which he is expected to be interacting. The subject may show signs of restlessness, he may be daydreaming, he may be languishing, or he may engage in deviant behavior or inappropriate responses, i.e., attending to others or being involved with different materials.

As with the materials dimension, the observer must have accessible or must memorize the categories of the Attention dimension prior to observing. If desired, the observer could rate the degree of attention on a separate scale. These ratings would have to occur during the observation period as the OSOT notational system does not provide such data.

5. MOTOR ACTIVITY LEVEL. The various types of physical activities exhibited by a subject in a classroom setting can be classified into one of the following five descriptive categories:

(0) No overt movement. The key to this category is stillness. The subject is quiet, he is not engaged in locomotion-type activities, and he is not involved in any strenuous or intense physical activity requiring the use of muscles other than those needed to maintain his bodily position. Some flexibility is allowed. For example, it is permissible for the subject to engage in very minimal amounts of low-keyed vocalization and reflexive-like bodily movement. It is also permissible for the subject to hold (though not to carry or use) objects which weigh only a few ounces, e.g., a pencil. Likewise, it is acceptable for the subject to clasp lightly some larger object, e.g., a chair leg or a door handle.

Activities, such as looking or listening, may be assigned to this category providing that such behavior is not combined with more than minimal head movement. Some acceptable activities which may be assigned to this category include: standing, kneeling, sitting, lying down, etc.

We will assume, for example, that the subject tenses his muscles while: (1) holding objects weighing more than a few ounces, (2) grasping tightly some object (even though it might be adhered to the wall or resting on the floor), and (3) sitting, lying, or standing in some vehicle being pushed or pulled by others. None of these latter mentioned activities, or ones similar to them, are to be considered as being acceptable for the No Overt Movement category.

(1) Moderate Movement, No Locomotion. Assign subjects to this category if they are engaged in activities requiring only moderate amounts of bodily movement but no locomotion or bodily movement. The slight locomotion which accompanies easel painting would qualify because the subject is not really changing locations. The subject

may be writing, drawing, painting, talking, singing, laughing, puzzling, constructing, sobbing, tossing an object, standing on one foot, etc. He may be in a wagon which is being propelled to a different location by others.

(2) Moderate Movement, Locomotion. The subject engages in physical activities requiring only moderate amounts of bodily movement and moderate amounts of locomotion. The subject would be engaged in a locomotion sequence requiring only moderate amounts of movement. He may be slowly climbing, crawling, skipping, trotting, or walking, etc.

(3) Intensive Movement, No Locomotion. Assign subjects to this category if they are engaged in activities requiring intensive amounts of bodily movement but no locomotion or minimal amounts of locomotion. The subject may be swinging arms, punching, kicking, crying, hammering, throwing and catching in place, jumping or hopping in place, churning, etc.

(4) Intensive Movement, Locomotion. The subject engages in physical activities which are very strenuous and which require locomotion. Some activities which would fit this category are: running, jumping, dancing, hopping, climbing, pulling or pushing a wagon, etc.

If you are uncertain as to where a particular activity is to be classified, consider the strenuousness or intensity of the activity. Activities of moderate degrees of intensity or those that are somewhat strenuous should be classified with moderate movement, etc. IF you are still undecided, classify the activity as moderate.

The activity dimension represents one of the two OSOT dimensions which requires categorical memorization on the part of the observer prior to observing.

In sum, the five OSOT dimensions described above should provide the user with much of the data required to describe what the student does in the classroom. The OSOT procedure requires that the observer learn only a few category descriptions prior to the actual observation. A number of other category descriptions are to be incorporated by the observer as he collects data. About thirty category descriptions (possibly many more) need not be memorized by the observer as they may be determined from the OSOT notational data.

OSOT CATEGORICAL SUMMARY SHEET

Location

(0) Undeterminable
(1) Administrative
(2) Art and Painting
(3) Audio-visual
(4) Bathroom
(5) Blocks
(6) Books
(7) Clothing
(8) Chalkboard
(9) Doll
(10) Exercise and gym
(11) Game and learning
(12) Kitchen and sink
(13) Lesson
(14) Mammals
(15) Music
(16) Nature
(17) Open area
(18) Play-kitchen
(19) Science
(20) Storage
(21) Table
(22) Transportation
(23) Woodworking
(24) Miscellaneous

Materials

UN - Undeterminable
ANI - Animal and Imped.
ART - Art
AV - Audio-visual
BKS - Books
BLD - Building
COM - Communication
CON - Construction
DOL - Dolls
DRM - Dramatic
FLM - Films
FOO - Food
FRN - Furniture, classroom
FSI - Food service
HKP - Housekeeping
MUS - Musical
NAP - Napping
NSQ - Non-sequenced
PE - Play Equipment
PLT - Plant
PLY - Play Supplies
REC - Records/tapes
SCI - Science/nature
SEQ - Sequenced
SND - Sand
SUP - School Supplies
TOY - Toys, gen
TRN - Transportation
WHL - Wheel
WTR - Water play
NO - No materials

Social Interaction

(0) None
(C0) None within group
(1) Student-student
(2) Student-teacher
(3) Student-visitor
(4) Student within group
(5) Group I: 3-7
(6) (Supervised) Group I: 2-7
(7) Group II: 8-11
(8) Group III: 12-15
(9) Group IV: 16+

Attention/Involvement

(0) Undetermined
(1) Proximal A/I
(2) Distal A/I
(3) Inattention/Noninvolvement

Activity Level

(0) No overt movement
(1) Moderate, no locomotion
(2) Moderate locomotion
(3) Intensive, no locomotion
(4) Intensive locomotion

THE OSOT NOTATIONAL SYSTEM

In this section we will describe the graphic-like notational system which is to be employed to collect OSOT data. Essentially, the OSOT system requires the observer to sketch subject and material symbols, relative to their actual locations in the classroom, on a page containing a classroom layout predrawn to scale. Letters are inserted within the bounds of subject and material symbols so that the subjects and materials are identified. Other symbols and lines are appended to subject symbols to indicate sex, social interactions, attention, and motor activity. Similar symbols and lines connect the subject and material symbols reflecting material usage and involvement.

General Notational Symbols

STUDENTS. Depending upon their sex, students are indicated by one of two possible symbols we have adopted from the field of biology. A circle with an appended arrow (see Figure 2) indicates a male organism, or in our case, a boy student. A circle with an appended cross (see Figure 2) indicates a female organism, or a girl student. Essentially then, a student, according to the OSOT system, will be indicated by a circle. The sex of the student is indicated by the sex-indicating tail--the arrow or the cross. The sex indicator tail is also employed to indicate the direction toward which the subject faces

Figure 2

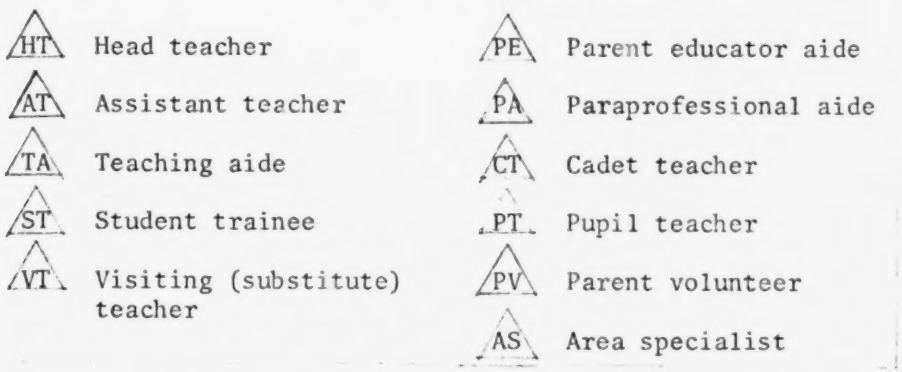
Boy Symbol ♂ Girl Symbol ♀

Individual students, boys or girls, are identified by placing the initials of their names (first name, last name) in the appropriate circle (e.g., Bruce Michaels BM♂, or Stacie Heathering SH♀.) Some procedure should be invented to distinguish one student from another in the event that two or more boys or girls have the same set of initials. The sex-indicators--the arrow and cross--appended to the circles, serve to distinguish a boy from a girl who may have the same initials. When two boys have the same initials, the addition of a middle initial often will be sufficient. The inclusion of a girl's mother's maiden name may also suffice. If the middle initial invention does not work use the initial of a "nick-name," or of some distinguishing feature (e.g., "Big" Marc Turchin (BMT)♂). In any event, the procedure finally settled on should be recorded so that others can know precisely to whom the symbols refer.

TEACHERS. Teachers and their supporting instructional staff are indicated by the use of a triangle (e.g.,). The sex of a member of the teaching staff is indicated by the same system employed with students. The arrow appended to a triangle (e.g.,) indicates that the teacher is a male. A cross appended to a triangle (e.g.,) indicates that the teacher is a female. Again, the sex indicating tail is to be employed to indicate the direction toward which the teacher is oriented.

Different categories of instructional staff members may be indicated as in Figure 3.

Figure 3

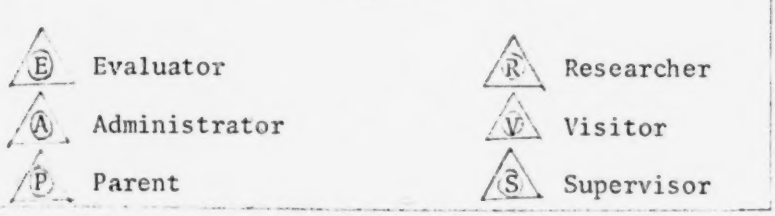


If there is more than one teacher per category and, if the user desires, he may identify the individual teacher by placing the appropriate initials near the symbol (e.g.,)

OBSERVERS. Observers, including evaluators, administrators, parents, visitors, etc., are symbolically distinguished from members of the teaching staff by placing a circle within the triangle (e.g.,). Again, the sex of the observer is indicated by the sex-indicating tail--the arrow or the cross.

Different categories of observers may be indicated as in Figure 4.

Figure 4



If there is more than one observer per category and, if the user desires, he may further identify the observer in any suitable manner.

Notational Systems for OSOT Dimensions

1. LOCATION. The placement of subject symbols during the observation on the classroom layout page, relative to the actual location of the subject in the classroom, later provides the basis for classifying the location dimension.

There may be instances, especially during highly mobile periods, that the observer finds that he must sketch two subjects occupying the same space. This is a possibility since the observation takes place over time and one subject may displace another one. In such instances, the second subject symbol may be drawn with dots (see Figure 5). Or, if other OSOT codes will not be effected unduly, the second subject symbol can be drawn as occupying a different space within the appropriate location area. If excessive mobility occurs, the observer may have to discontinue that OSOT observation.

Figure 5

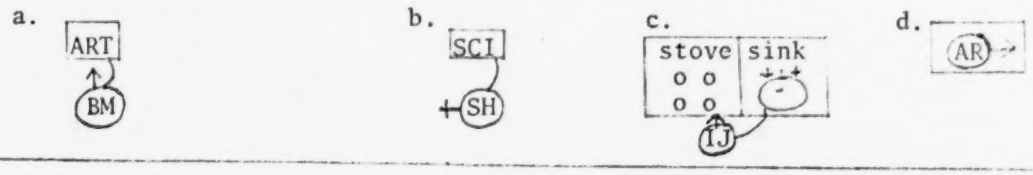
2. INSTRUCTIONAL AND/OR PLAY MATERIALS. Rectangles or squares are employed to indicate instructional materials when they are not already labeled on the reproduced diagram. The thirty-one, two, and three letter mnemonic codes earlier used to describe the categories of the instructional and play material dimension should be appropriately inserted in the rectangles to indicate material type. (See Figure 6 for examples.) Numerical codes may also be used if they are properly identified.

Figure 6

ART	Art
HKP	Housekeeping
CON	Construction
SCI	Science and Nature

That a subject is near a particular material does not necessarily mean he is involved with that material. To show apparent subject-material involvement a curved line should be drawn from the subject symbol to the material symbol or the displayed object on the diagram (see Figure 7). Note again that the sex-indicating appendage should always be oriented toward the direction that the subject is facing.

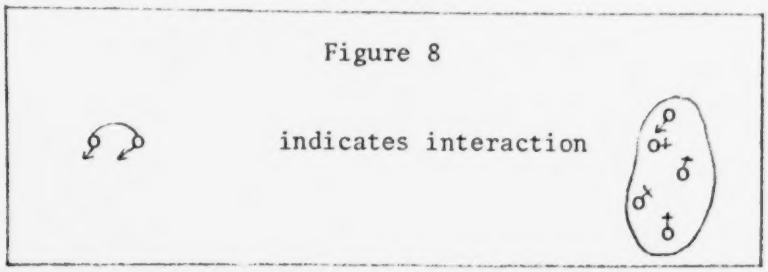
Figure 7



The nap period represents a peculiar situation for the OSOT coding system. To indicate that the subject is napping on a mat, rug, or cot the subject symbol is placed within a large otherwise unidentified rectangle (see Figure 7d). In coding, however, napping materials are only indicated if they are being carried or otherwise manipulated. They are not coded for the materials interaction category if they are only being laid upon.

3. SOCIAL INTERACTION. Social interactions as well as subject-material interaction are displayed in the OSOT system by use of curved lines and/or by encirclement (see Figure 8).

Figure 8



Curved lines typically are used to show interactions between either two or three subjects or between a subject and the material with which he interacts (see Figure 9). The encirclement procedure may be employed when three or more subjects interact. Bidirectional interaction is to be assumed unless the curved lines or the sex-indicating tails of the subject symbol are embellished by other symbols. This feature will be discussed in the following section.

Figure 9

a. Students not socially interacting:

b. Students interacting:

c. Students--talking or listening:

d. Students talking or listening to teacher:

e. Students in physical contact:

f. Students sharing a toy:

g. Teacher--interacting with students in small group activity:

h. Students intentionally grouped by teacher:

i. Students interacting with a "sequenced" game and with each other:

4. ATTENTION. Attention or involvement, or their reverse, may be indicated in the OSOT system in several ways. The unembellished curved line employed to indicate bidirectional interaction also denotes bidirectional attention (see Figure 10a). When the curved line is embellished by an arrowhead, as in Figure 10b, the intention is to convey the observation that B is interacting and attending to A, but that A is not attending to B--an instance of unidirectional interaction and attention. Subjects are said to be interacting if they are in physical contact. However, such an interaction need not imply that they are attending to one another. In Figure 10c a zero is used to embellish the curved line to indicate no attention.

Figures 10d-1 and 10d-2 examine two possible complex interaction and attention situations. Figure 10e shows a situation involving several students formed into a group by the teacher, which automatically assumes interaction, but not necessarily attention. Students A, D, and F are not attending to the teacher: Student A is daydreaming (note the zero on the end of the sex-indicating tail); student D may be playing with buttons on her dress; and student F is looking away (and looking away is not an appropriate response in this situation). In these instances inattention is to be indicated as attention was expected. Figure 10e-2 shows a very complex situation.

Students A, E, G, H, and F are attending to the teacher despite the fact that F is not "looking at" the teacher. We can assume that student F is, in this case, following the teacher's instruction to "interact" with the assistant teacher. Student D, who is not attending to the teacher is attending to student F, though it is a unidirectional relationship. Students B and C are attending to each other, but not to the teacher. Figure 10f shows social interaction and material involvement.

In these examples, we have used zeros appended to sex-indicating tails to denote a lack of expected attention to a relevant source of stimulation. This is the procedure to follow in all such cases.

Figure 10

a. Bidirectional interaction and attention

b. Unidirectional interaction and attention.

c. Bidirectional interaction (physical contact) but not attention.

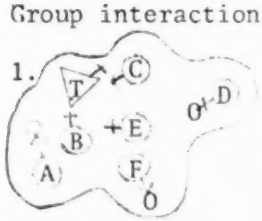
d. Complex interactions and attention situations.

1. Students interacting and attending to each other but not to teacher who is interacting (e.g., speaking to) and attending to student A. She is not interacting with nor apparently attending to student B.

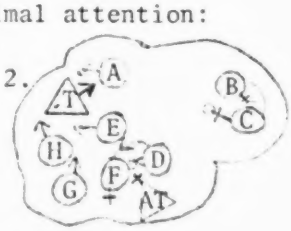
2. Students interacting and attending to a teacher but not to each other. She is not apparently attending to either one.

e. Group interaction and proximal attention:

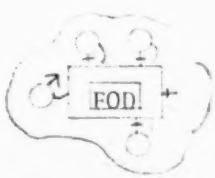
1.



2.



f. Group social and material interaction and proximal involvement.



In Figure 11, encounters between subjects and materials are displayed in terms of interaction and involvement. In Figure 11a-1 and 11a-2 the students are interacting and involved with the material. In 11b we find that the student is interacting with the material but he is not involved with it. He may, for example, be holding the material in his hand but attending elsewhere, i.e., to the teacher who is walking by. We assume here that the student was expected to be involved with the material. We see a similar situation in 11c. In the last example we find that the student is not involved with the materials, or anything else--he may be daydreaming.

In these instances we find that the zero appended to the sex-indicating tails, or in the case of Figure 11c appended to the curved line, can provide us with information dealing with the dimension of involvement.

Figure 11

a. Students interacting and involved with material. 1.

2.

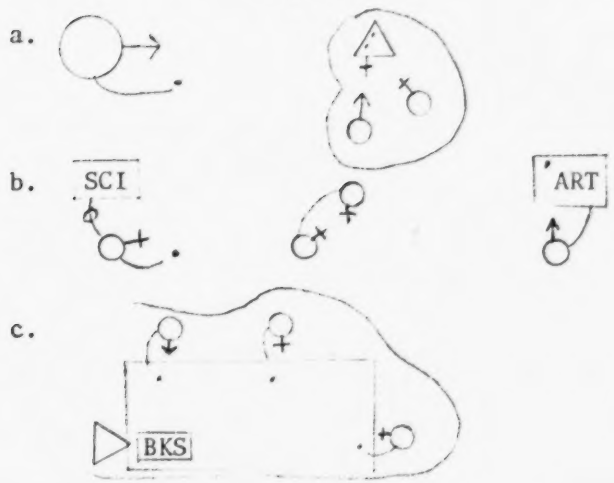
b. Student interacting with but not involved with materials. The student is unidirectionally interacting with the teacher.

c. Student interacting with materials and another student but not involved with materials.

d. Student interacting with but not involved with materials or anything else.

Most of the above examples have been concerned with proximal attention and/or involvement. Examples e1 and e2 and f of Figure 10 are concerned with proximal attention or involvement. In general, distal attention is to be assumed when the student symbol is encircled and when a relevant stimulus has been identified. Identified stimuli are indicated by placing a "dot" within the subject or material symbol (see Figure 10e1 and 10e2). When the student symbol is not encircled, distal attention and/or involvement is indicated by a short curved line followed by a space and a dot and which heads in the general direction of the identified stimulus. The orientation of the sex-indicating tail also serves to pin-point the particular relevant stimulus (see Figure 12 for examples).

Figure 12



5. MOTOR ACTIVITY. Lines of different lengths and frequency are employed to indicate moderate and intensive movement and/or locomotion. In Figure 13 below, we show how the five categories of the motor activity dimension can be displayed by use of the OSOT notational system.

Figure 13

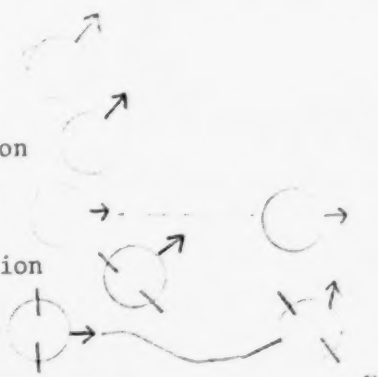
a. (0) No-overt-movement

b. (1) Moderate movement, no locomotion

c. (2) Moderate movement, locomotion

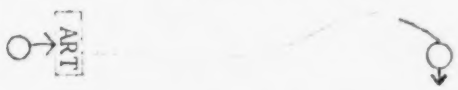
d. (3) Intensive movement, no locomotion

e. (4) Intensive movement, locomotion



According to the OSOT system, unless otherwise indicated, moderate movement is always assumed. No-overt-movement is denoted by an appended zero, while intensive movement is denoted by two short appended lines. Locomotion is displayed by a spacial arrangement of two subject symbols connected by a line. When the subject is carrying materials while locomoting, the procedure displayed in Figure 14 is to be employed.

Figure 14



DATA COLLECTION

THE CLASSROOM DIAGRAM

Two of the very first steps to be taken in employing OSOT are the creation of a diagram of the classroom in which the observations are to take place and the duplication of such diagrams. The diagram should display furniture, fixtures, and materials which have a reasonably fixed position in the classroom, shelves, tables, play furniture, desks, etc. And, if the diagram will not be too cluttered, the user should provide labels for diagrammed items. (See for example Figure 1.)

It is a relatively simple matter to construct a classroom diagram by employing graph paper. We found it best to employ graph paper having five squares to the inch. Treating the length of a square as equivalent to an individual's foot, the limits of the classroom are paced off first. Next the windows and doors are indicated on the diagram. Later the dimensions of fixed items are paced off and located on the graph paper. When appropriate, the fixed items may be labeled.

Sometimes location boundaries may be indicated directly on the diagram, but mostly it is more convenient to depict them on an overlay. This type of procedure results in a "cleaner" diagram. When boundary locations are placed on the diagram, it is to aid the observer in placing the subject symbol on the diagram in a location corresponding with the subject's real position in the classroom at the time of observation.

POINT-TIME SAMPLING PROCEDURES (CLUSTER OBSERVATIONS)

In general, it is necessary to keep track of subjects already observed. Consequently, the names of students are to be ordered on a list according to some system: an alphabetical order is acceptable. The observer begins the OSOT observation by locating in the classroom the first student on the list. Each subject--or if the subject is interacting with others, each cluster of subjects--is observed in a form resembling a snapshot. That is, the observation is instantaneous. If the "observation" lasts more than a few seconds per subject, such time serves only to clarify what the subjects were doing at the first moments of observation. As soon as the observer completes his notations for the first student or for the cluster of subjects, he proceeds to locate the next student on the list. If the observer has already depicted what the next student on the list was doing, he skips to the next student and so on.

The number of students to be included on the list will depend, in part, upon the experience of the observer and, in part, upon the observation strategy. It is recommended, for example, that the inexperienced observer should begin making OSOT observations for only a few students at a time. The total number of observed students can be increased gradually as the observer gains experience.

It is somewhat difficult, especially during highly mobile times or in active classrooms (classes do differ in their overall activity level) to record the behavior of many more than fifteen students at a time. It is suggested, therefore, that the number of students observed at any one time be limited to between 10 and 15. However, any workable number may be selected, the decision being left as a local option.

SUBJECT DATA

Notations that the observer should make for each subject include:

1) the subject symbol appropriately located on the diagram and identified
2) if there is subject-material interaction, the material symbol should be located on the diagram and identified appropriately
3) an indication of student-material involvement
4) if appropriate, indications of student-other interactions
5) if appropriate, indications of attention
6) indications of the level of motor activity

OSOT DATA CONVERSION AND SUMMARY FORMS

As noted previously, OSOT data is collected (accreted) in a pictorial form, and must therefore be converted to other forms before they can be operated upon statistically. Figures 15, 16, 17, and 18 display Data Conversion and Data Summary forms which can be employed for coding and analyzing OSOT data by individual students. The OSOT Data Conversion Form displayed in Figure 15 is used for coding purposes: The visual data here being converted into categorical codes. After the data is converted it may be summarized by use of the forms displayed in Figures 16, 17, and 18. Figure 16 displays a Location-Activity Summary form. Displayed in Figures 17 and 18, respectively, are summary forms for Material Interaction-Involvement and Social-Interaction-Attention.

Figures 19, 20, and 21 display data summary forms which may be employed on a group basis. Converted data from the OSOT Data Conversion Form is summarized here. The forms are self-explanatory.

VALIDITY AND CONSISTENCY

VALIDITY

Issues of validity generally are concerned with determining what the target instrument measures. The major validity question for the OSOT is whether or not the collected data reflects accurately the transactions in context components of the classroom it was designed to portray. Specifically: Does the OSOT data portray the actual social interactions between subjects?

Example

Figure 15 - OSOT Data Conversion Form - Individual

CLASSROOM _____ STUDENT _____

Date and Time	Location	Activity	Involvement	Social Interaction	Attention	Material Interaction

Example

Figure 16 - OSOT Data Summary Form - Individual
(Location - Activity)

CLASSROOM _____ STUDENT _____ - _____

Date and Time	Location Identification																															Activity Level				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	0	1	2	3	4

Figure 17 - OSOT Data Summary Form - Individual
(Material Interaction - Involvement)

Example

CLASSROOM _____ STUDENT _____

Date and Time	Material Identification																															Involvement				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	0	1	2	3	4

Example

Figure 18 - OSOT Data Summary Form - Individual
(Social Interaction - Attention)

CLASSROOM _____ STUDENT _____

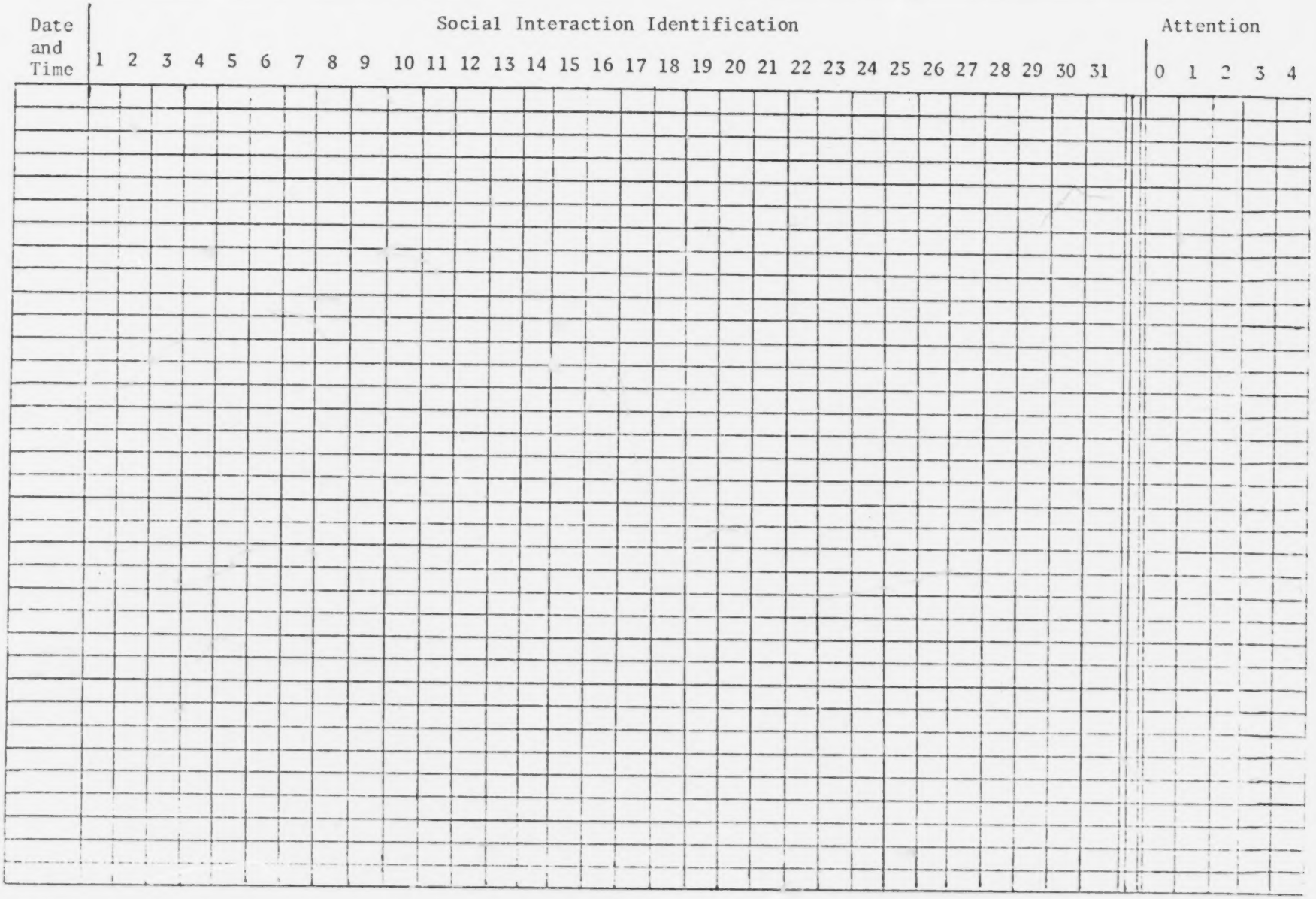


Figure 19 - OSOT Data Summary Form - Group
(Location - Activity)

Example

Number of Observations _____
From _____ To _____ Classroom _____

Name	Location Identification																														Activity Level				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	0	1	2	3	4

Example

Figure 20 - OSOT Data Summary Form - Group
Material Interaction - Involvement

Number of Observations
From _____ To _____ Classroom _____

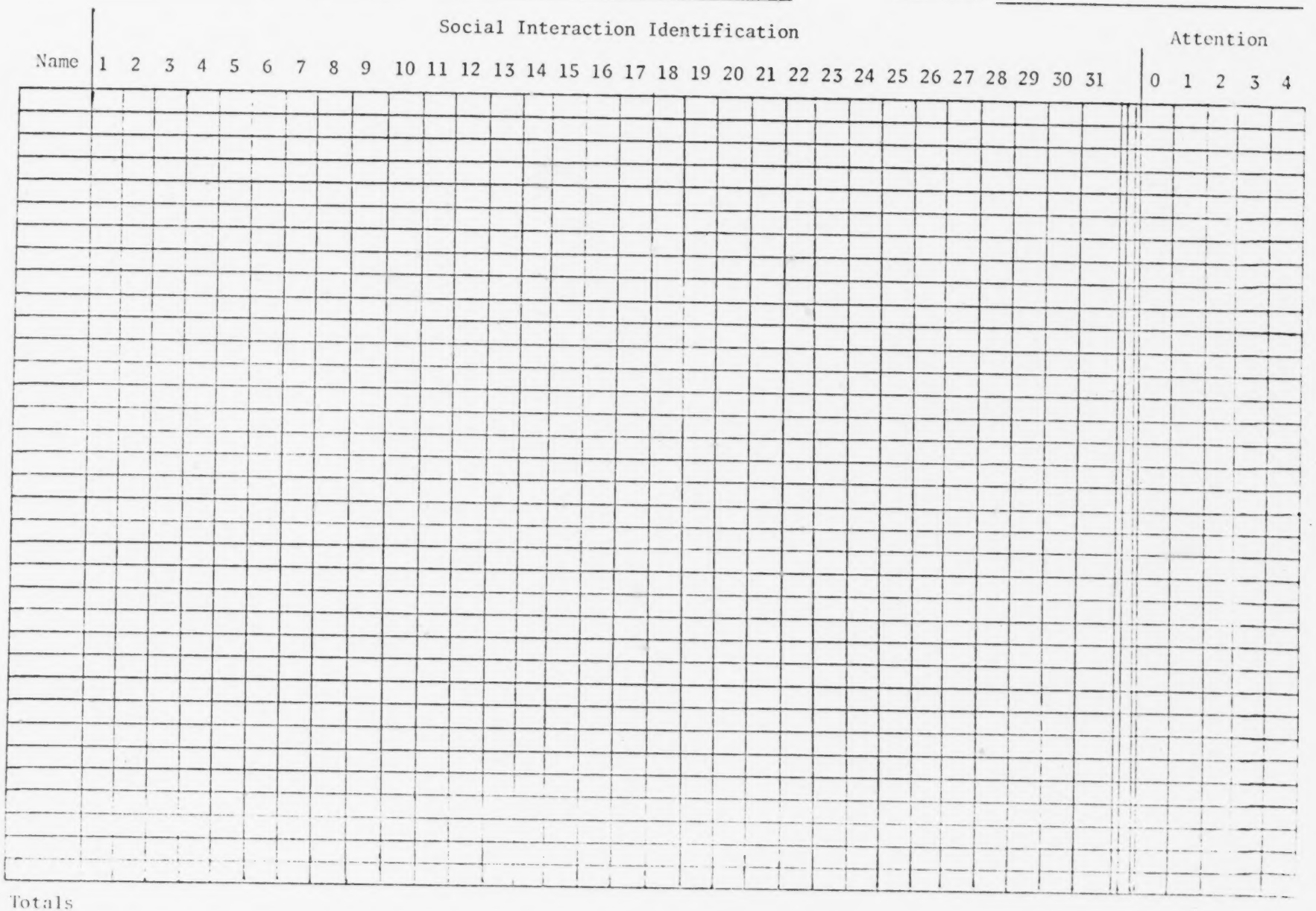
Initial	# Obs.	Material Identification																													Involvement				
		UN	ANI	ART	AV	BKS	BLD	COM	CON	DOL	DRM	FLM	FOO	FRN	FSI	HKP	MUS	NAP	NSQ	PE	PLT	PLY	REC	SCI	SEQ	SND	SUP	TOY	TRN	WHL	WTR	NO	0	1	2	3	4

Figure 21 - OSOT Data Summary Form - Group
Social Interaction - Attention

Example

Number of Observations _____

From _____ To _____ Classroom _____



Does the OSOT indicate clearly the activity level of the classroom? Does the OSOT correctly reflect the attentional and involvement of the subject with others and with materials? Overriding these questions is the issue of whether the OSOT provides the user with evaluationally useful information? The former questions can be assessed by comparing OSOT data with data collected by use of other types of data-collection instruments. It would also be useful to determine if OSOT data can differentiate between early childhood educational programs. Experts would have to be used to assess the evaluational usefulness of the OSOT.

Wilensky (1966) reported on the results of the LAMI, and found differences between subjects and classes and differences over time for the same subjects and classes. The OSOT should show similar effects. The results of Wilensky's study was very useful for modifying teacher behavior. It also proved to be evaluationally useful for describing the program it was intended to describe.

CONSISTENCY

When we discuss the consistency of OSOT we must consider two issues: inter-observer reliability (i.e., data collection) and inter-coder reliability (i.e., data categorization). As of this writing neither of these reliabilities have been determined, and it is a moot question of whether inter-observer reliabilities will ever be satisfactorily determined.

In order to evaluate exactly the consistency of the observer's observation, one must be certain that two or more observers observe the same subject(s) at exactly the same time. This criteria would be hard to achieve with cluster observing since one could not be very certain if observers were observing the same subject at the critical moment. Thus, inter-observer reliability might tend to be lower than its true value. If, for example, one avoids cluster observing and observes, in order, only one student at a time, the resulting coefficient may not be reflective of the inter-observer reliability of the typical OSOT procedure.

However, one can argue that samples of OSOT data, collected by different observers at the same time in the same classroom, should show considerable overlap and therefore should result in a similar portrayal of the transactional component of that classroom.

Estimates of inter-observer reliability can be evaluated by determining for each subject or each class of subjects, if the observers agree about:

1) subject location
2) subject identification
3) material location
4) material identification
5) subject-material interaction
6) subject-material involvement

7) subject-subject interaction
8) subject-subject attention
9) subject's motor activity

For sets of essentially nominal scales in which the categories are independent and not ordered (the nine categories just listed fit this definition), Cohen's coefficient of agreement for nominal scales (kappa) can provide an estimate of reliability (Cohen, 1960).

The inter-coder reliability is a relatively simple matter and asks if two or more coders, using the same categories and data, will end up with the same tally count. Each dimension can be evaluated for inter-coder reliability.

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APPENDICES

1. A DAY IN THE LIFE OF A CLASS: THE OSOT COMBINED WITH A RUNNING NARRATIVE

2. DATA ANALYSIS (EXAMPLES)

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1. A DAY IN THE LIFE OF A CLASS THE OSOT COMBINED WITH A RUNNING NARRATIVE[1]

The data displayed on the following twelve OSOT diagrams was collected in the morning session of a multi-aged publically and privately supported early childhood educational program. The twenty-eight children present during the observational session consisted of 16 boys and 12 girls ranging in age from three to six. The instructional staff, unusually large for an early childhood program of this size, consisted of a head teacher, an assistant teacher, and a male aide. A student teacher, assigned to the class for a semester was present as were four junior high school cadet teachers. The cadet students perform instructional services for approximately one hour a day, two days a week.

This data was recorded in May, near the end of a year's program.

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[1]The data recorded on the following diagrams is simulated: the subject initials, ficticious. Actual data was obtained over several sessions and modified slightly here to demonstrate more clearly certain transactional effects of interest.

OSOT No. 1

Officially, the early childhood education (ECE) class described herein begins at 8:45 A.M. As the children arrive they hang any outer garments they may have on assigned hooks located in the hallway. The children enter the classroom singly, in pairs or in triplets, and proceed, usually without being directed by a teacher, to an activity of their choice. However, it is to be noted that the teaching staff does exercise considerable control over the situation by selecting only certain materials for display. Such is the case for the sand art and sequenced reading materials.

This period of time is marked by considerable locomotion: the children are in the process of selecting an activity and in certain cases have not yet decided which activity they will choose. Sand play appears especially attractive at this time.

OSOT No. 2

All of the children had arrived by about 8:50. At 9 o'clock, when data for the second OSOT was recorded, most of the children had already selected an activity and the general level of locomotion was considerably reduced. This time segment represented the beginning of a period of individual instruction and the teaching staff encouraged certain children to interest themselves in particular activities.

Several children are engaged in dramatic play and employ artificial food and play utensils in their role play. Sand play and art work especially at the easel and with paste and wool, receives most of the attention of the children. Other children are engaged with construction toys, perceptual-motor games, puzzles, and Peabody reading readiness workbooks.

OSOT No. 3

At about 9:02 four junior high school cadet teachers arrived, two boys and two girls. They entered quietly and unobtrusively began to observe the children at work. At the time data for OSOT No. 3 was being collected we found that most of the children were busily engaged in some activity. The children PQ, UV, ZA, and IJ are exceptions to this.

Children are engaged in dramatic play and art work. The activity of pasting colored wool in different designs on construction paper receives a lot of attention. Now, fewer children are playing with sand. Some children are engaged in wood work play as the male aide helps them construct a small table.

OSOT No. 4

Earlier, the instructional staff appeared to play more of a directional and observational role than an interactional one. However, at this time we found that most of the instructional staff were involved in some form of active instruction. The assistant teacher was involved in dramatic play with five children. The male aide and a cadet teacher were aiding four boys in the construction of the table. Another cadet teacher was reading a story to some children. Still another cadet teacher was acting as the leader for Color-Rhyming Lotto. The teacher was checking to see if the child, EF, was correctly responding to the Peabody materials and the other instructors were checking on children not engaged in our activity.

OSOT No. 5

By 10 o'clock the cadet teachers had already left the classroom to return to their school which was about a block away. The situation in the class changed dramatically. No longer were children engaged in dramatic play or with wood working materials. However, children were still playing with the sequenced lotto game and the sand. Many more children now were using the programmed Peabody reading materials and the Sullivan reading materials also were being used. Some children returned to play with the art materials. The girl XY is still at the easel and has been joined by VW. The boys UV and AB seemed to be the only children unoccupied with materials. Earlier, they both were constructing the table.

OSOT No. 6

At the time that data for OSOT No. 6 was recorded the children appeared to be more restless. Some children began to react with the OSOT observer, others just wandered around. Children were still occupied with the Peabody and Sullivan materials and some with art materials. Several children were using puppets and this seemed to attract others. MN was using perceptual-motor materials, that is, he was using tiles to make designs. Two children were playing with beads and were stringing them.

OSOT No. 7

This OSOT portrays the snack time. The children were interacting in small groups at the tables and were eating simulated ice-cream cup cakes and drinking milk. For the most part, the instructional staff also used this time for a break. The children interacted with one another and their conversation ranged from discussions of clothes to what one child was going to do on the weekend.

OSOT No. 8

Snack time was just about over when data for OSOT No. 8 was recorded. As the children finished their cake and milk they walked over to where the mats were stored and then took the mats to the open area. Most children seemed to pair off, however, one child isolated herself in a corner behind the large round table. The instructional staff is not yet in an interactional role.

OSOT No. 9

OSOT No. 9 displays the nap period. Most children organize themselves in small groups, some nap by themselves. The record player was turned on while the children rested. The record, about sounds, required some interaction on the part of the children. Some children were pre-occupied with their neighbor and did not respond. UV had not finished his milk and was still at the table.

OSOT No. 10

After the nap period the class was divided into two groups, half of which remained in the classroom, half of which went into another classroom. The OSOT data reported here described only those children who remained in the classroom. This period began with group activities. The teacher used a book to elicit responses from the children. The assistant teacher employed the sequenced Lotto game with another group of children.

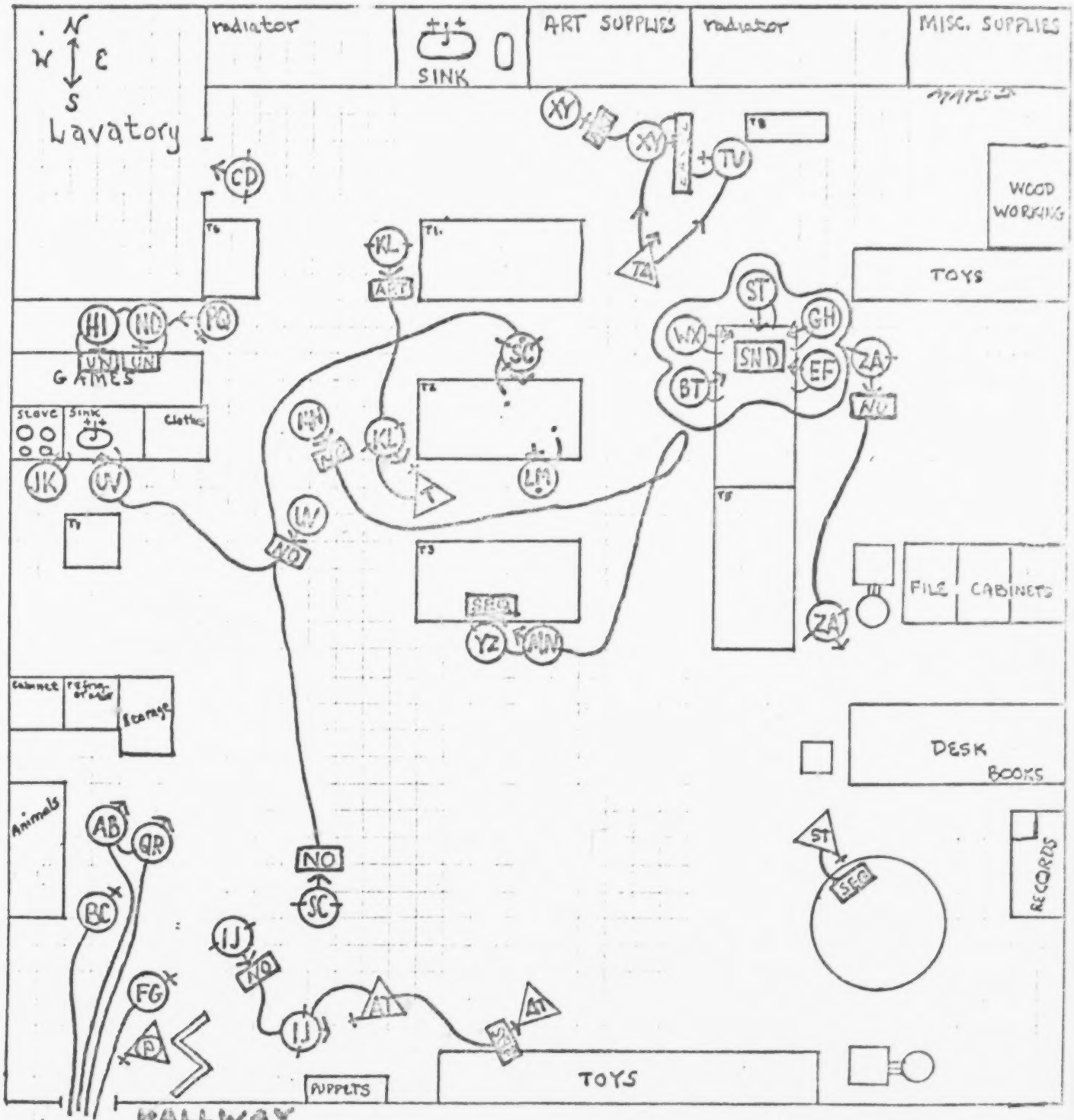
OSOT No. 11

Near the end of the small group period the picture was slightly different: the assistant teacher let the children work with the sequenced Lotto game under their own direction and gathered together some of the children from the teacher's group who appeared restless. The new group worked with a domino game. The teacher's group continued to work with the book and appeared more attentive.

OSOT No. 12

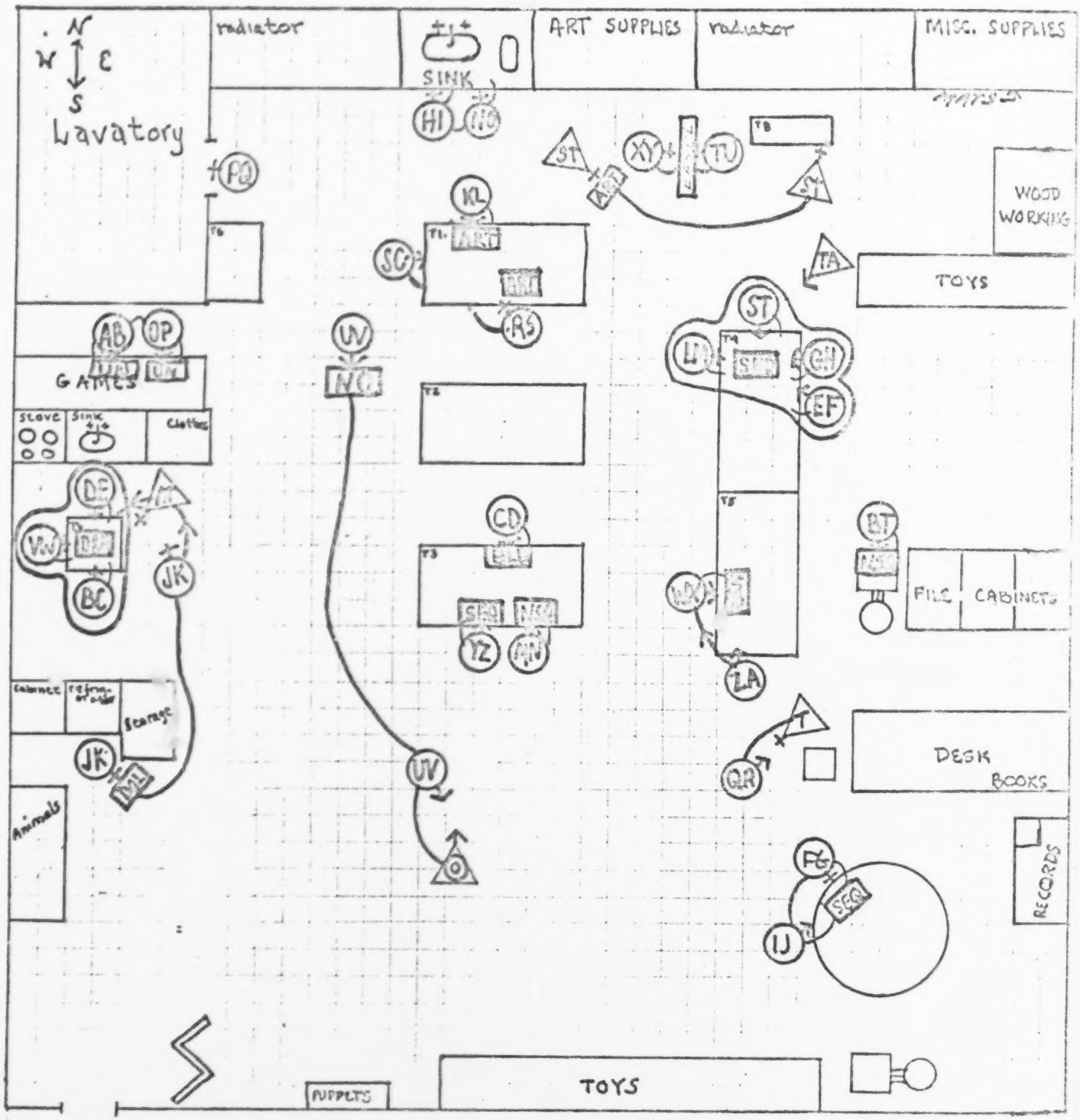
This class ended about 12 o'clock in the afternoon. OSOT No. 12 portrays the children putting the materials away, cleaning up and leaving the classroom. Two children are feeding the guinea pigs while a third, at the sink, is getting water in a pan.

In general, this program represents a departure from the more traditional kindergarten approaches. Children receive much more individual instruction and more attention is devoted to identifying their particular strengths and weaknesses. The unusually high level of sequenced reading materials in the program is another example of how this program differs from the more traditional ones.



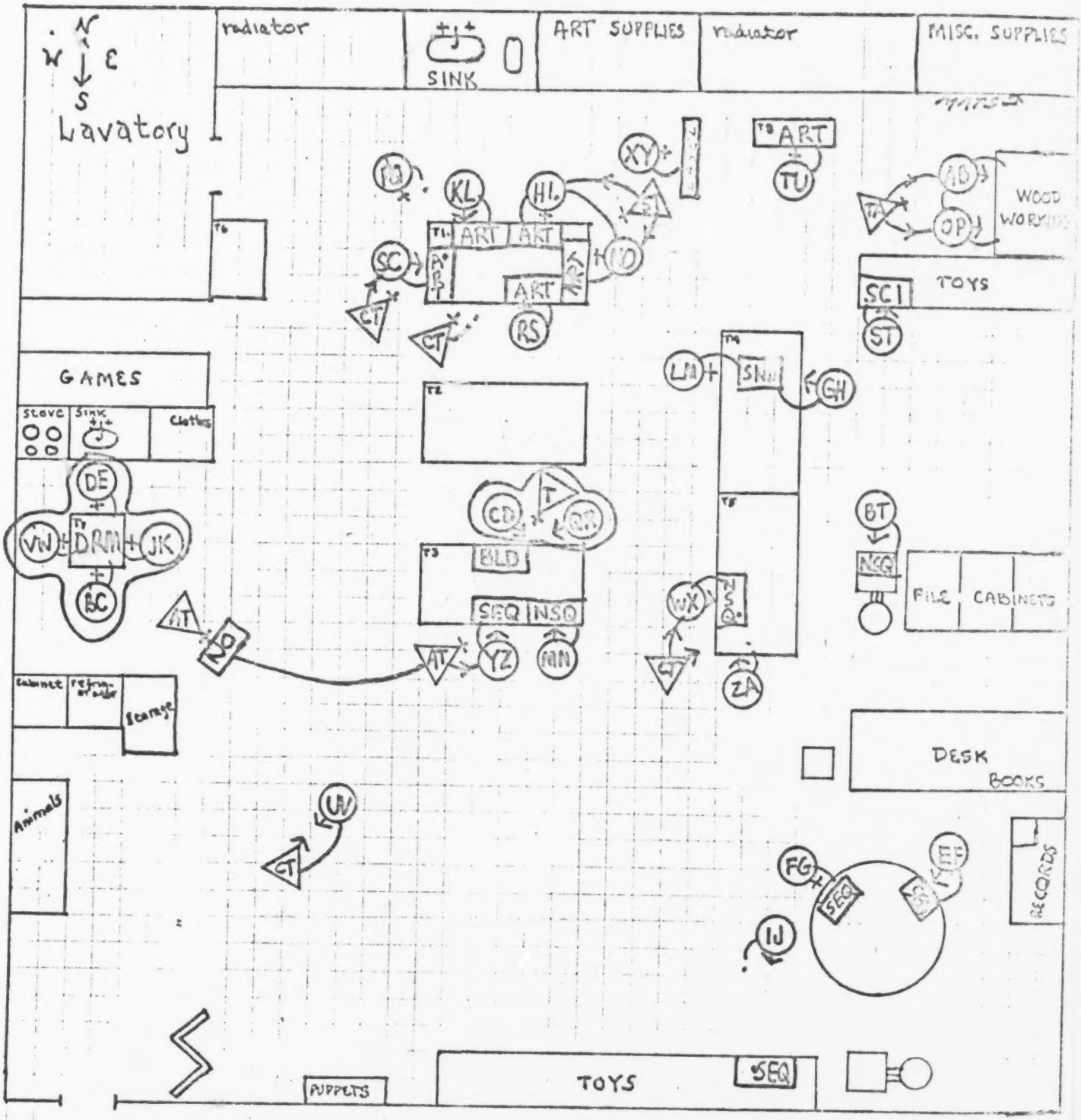
PLACE: _____ DATE: _____ OBS: _____

TIME: 8:47 ELAPSED TIME: _____ OSOT No.: 1 ACTIVITY: Free Play



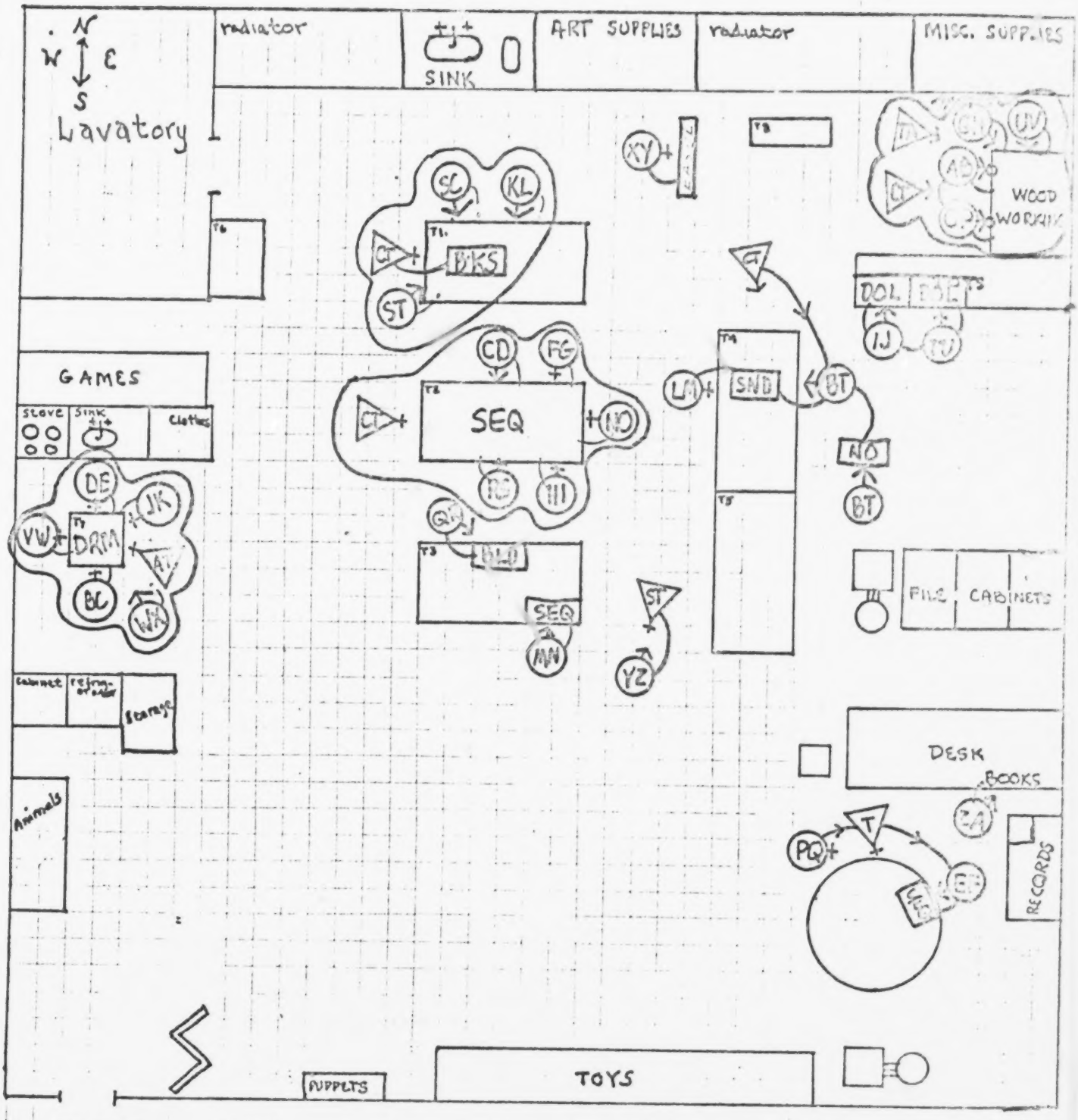
PLACE: _____ DATE: _____ OBS: _____

TIME: 9:00 ELAPSED TIME: _____ OSOT No.: 2 ACTIVITY: Individual



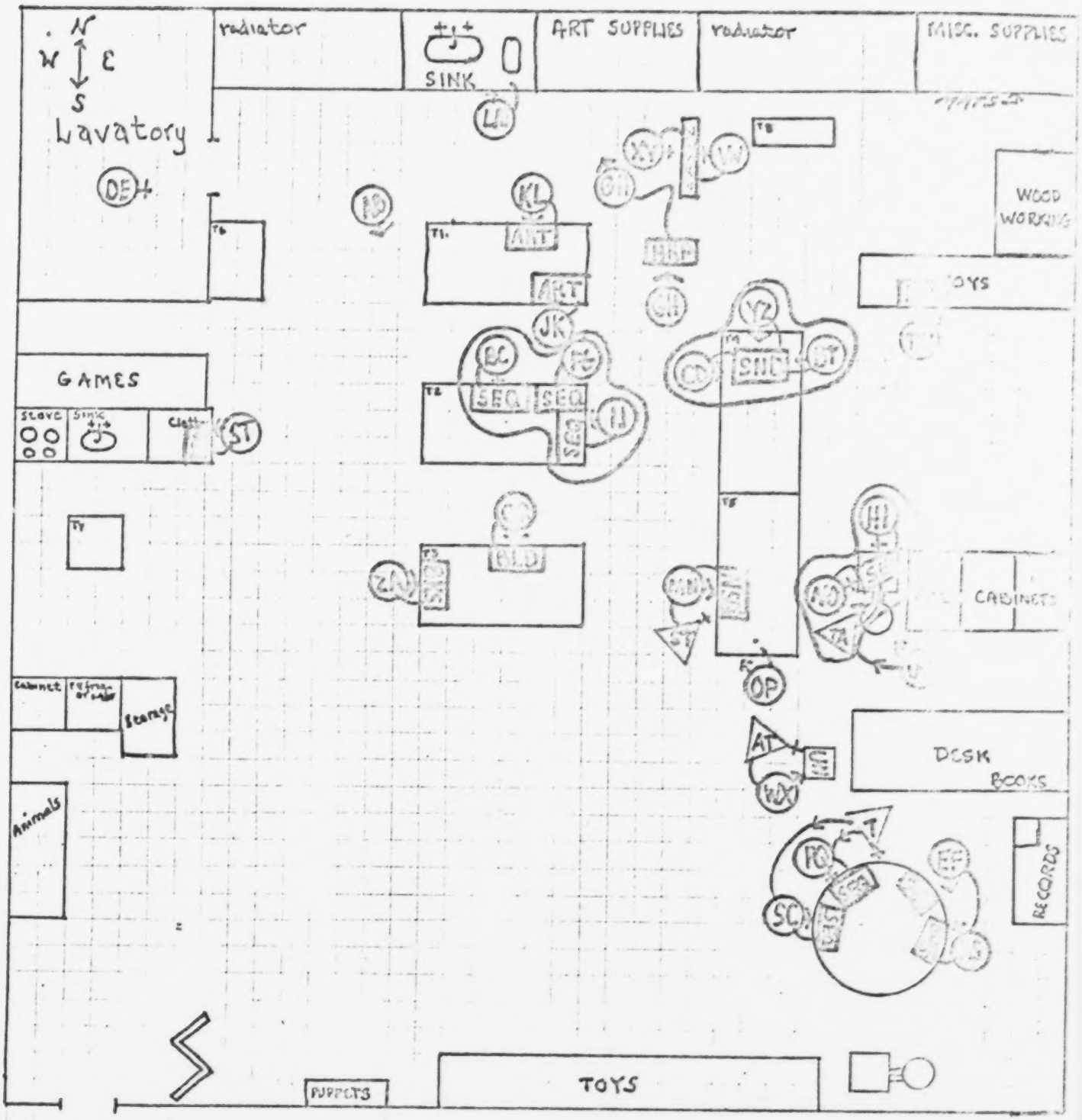
PLACE: _____ DATE: _____ OBS: _____

TIME: 9:05 ELAPSED TIME: _____ OSOT No.: 3 ACTIVITY: Begin Jr. High Time



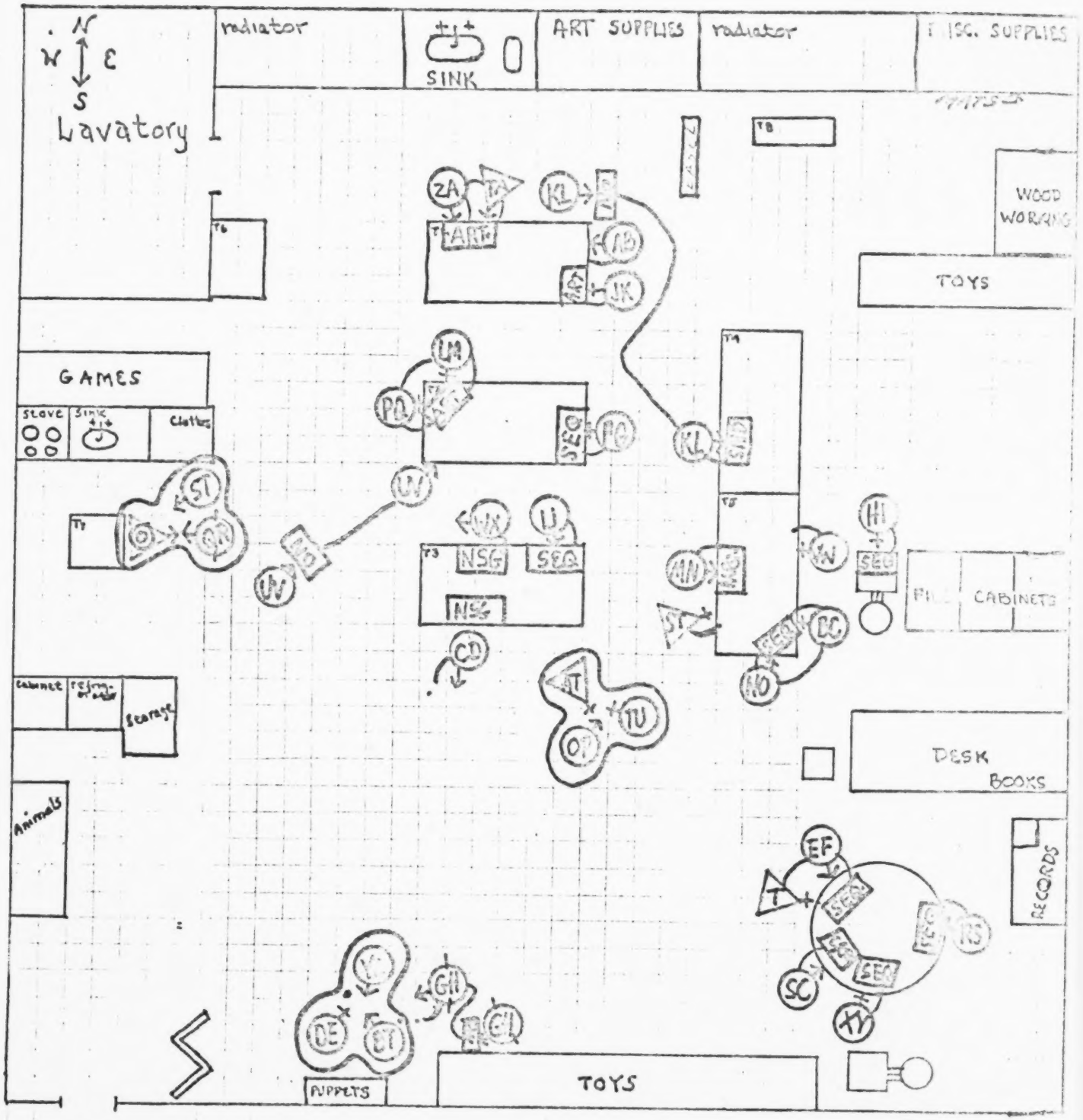
PLACE: _____ DATE: _____ OBS: _____

TIME: 9:35 ELAPSED TIME: _____ OSOT No.: 4 ACTIVITY: Jr. H.S. Cadet Leader Type 2



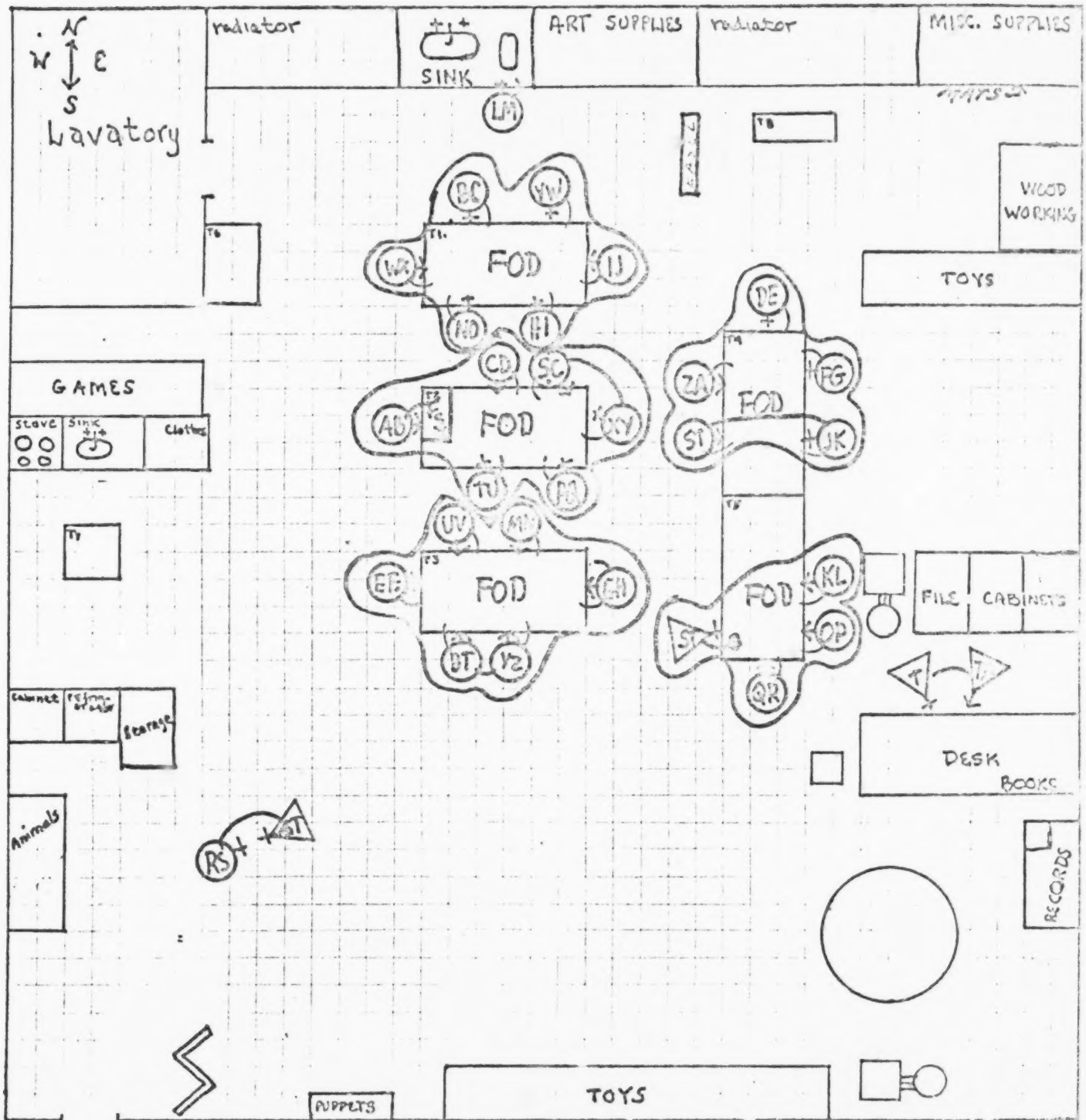
PLACE: _____ DATE: _____ OBS: _____

TIME: 10:00 ELAPSED TIME: _____ OSOT No.: 5 ACTIVITY: Individual Instruction



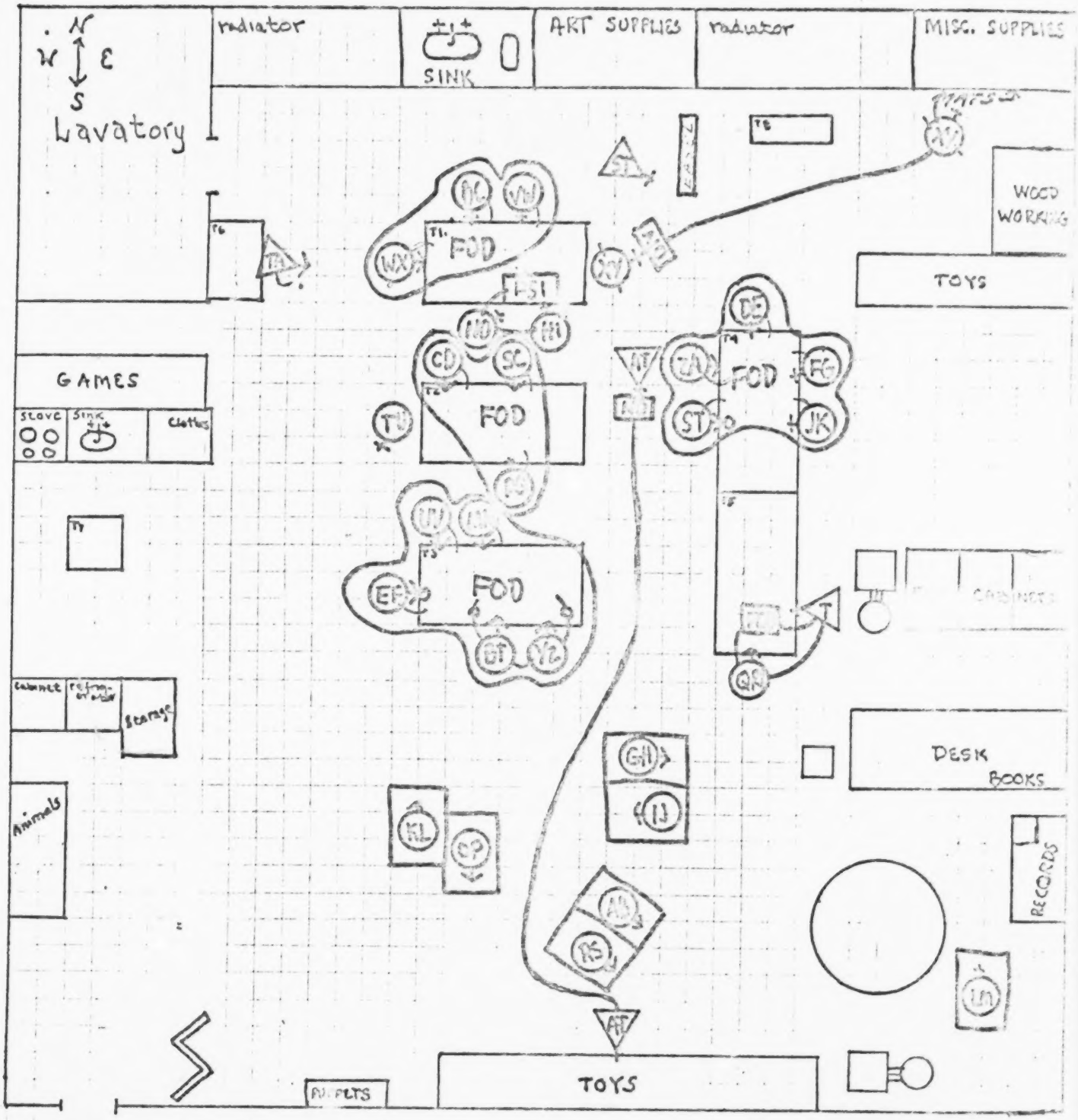
PLACE: _____ DATE: _____ OBS: _____

TIME: 10:12 ELAPSED TIME: _____ OSOT No.: 6 ACTIVITY: Individual



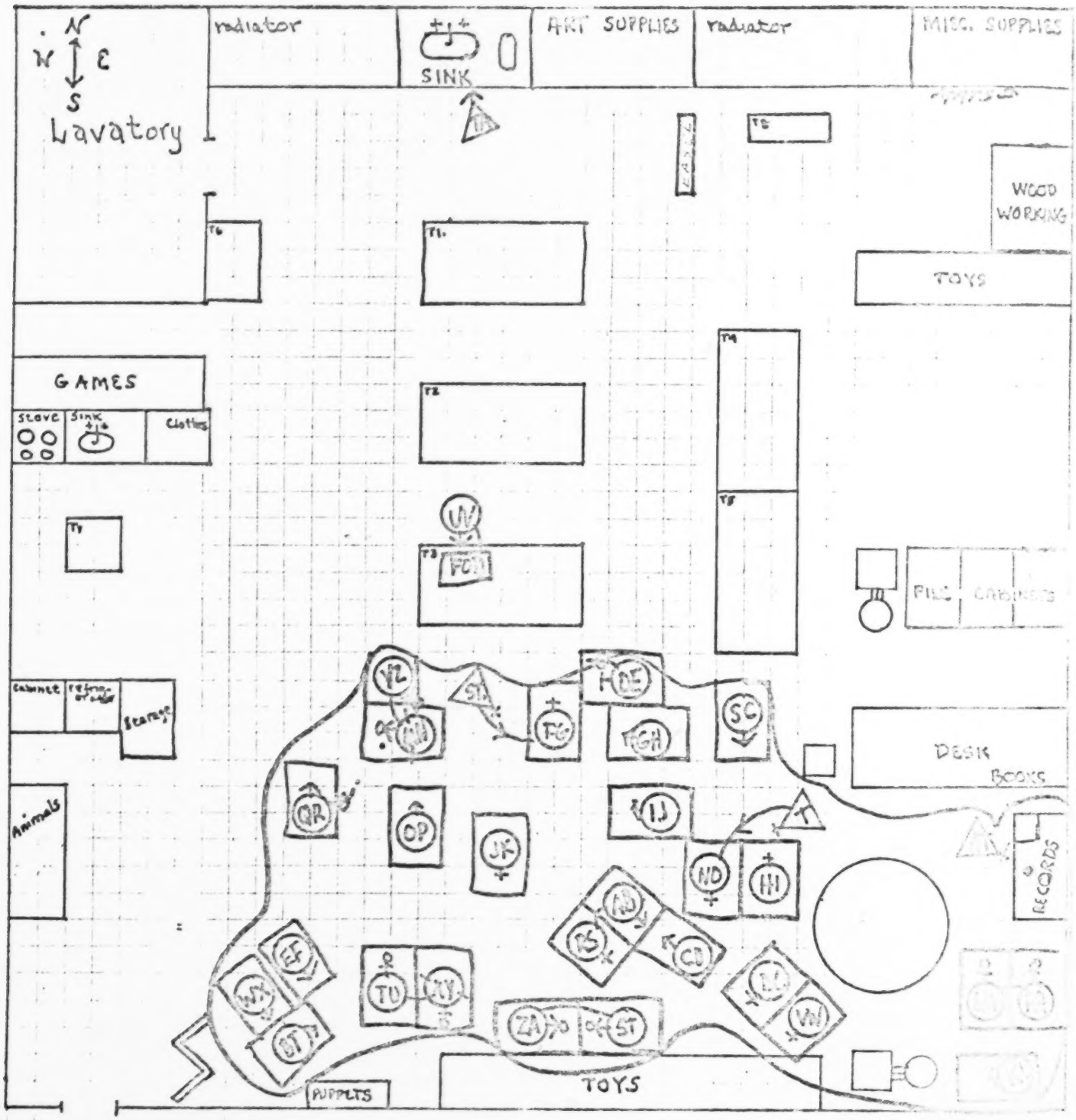
PLACE: _____ DATE: _____ OBS: _____

TIME: 10:1_ ELAPSED TIME: _____ OSOT No.: 7 ACTIVITY: Snack time



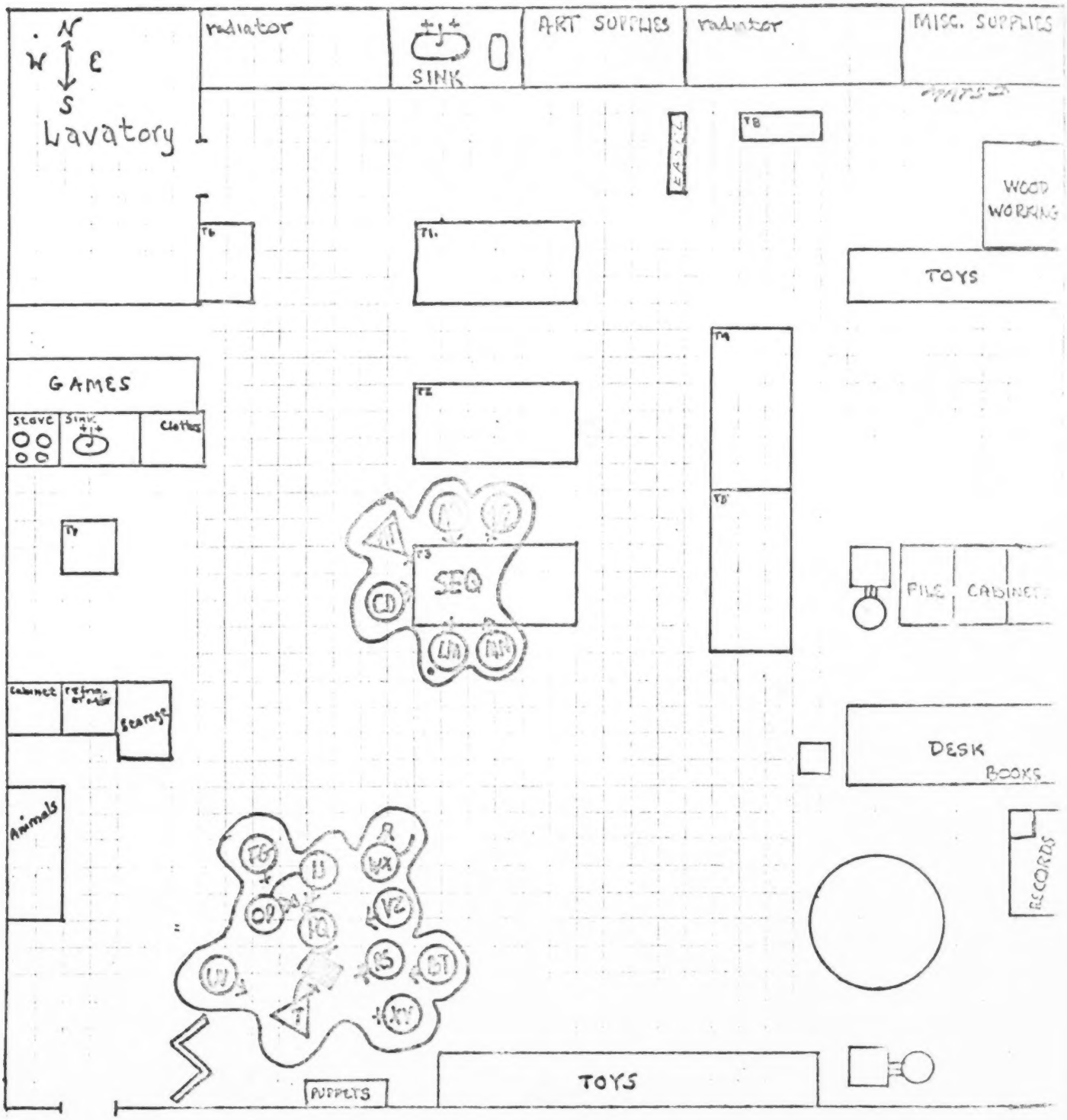
PLACE: _____ DATE: _____ OBS: _____

TIME: 10:30 ELAPSED TIME: _____ OSOT No.: 8 ACTIVITY: End of Snack Interval



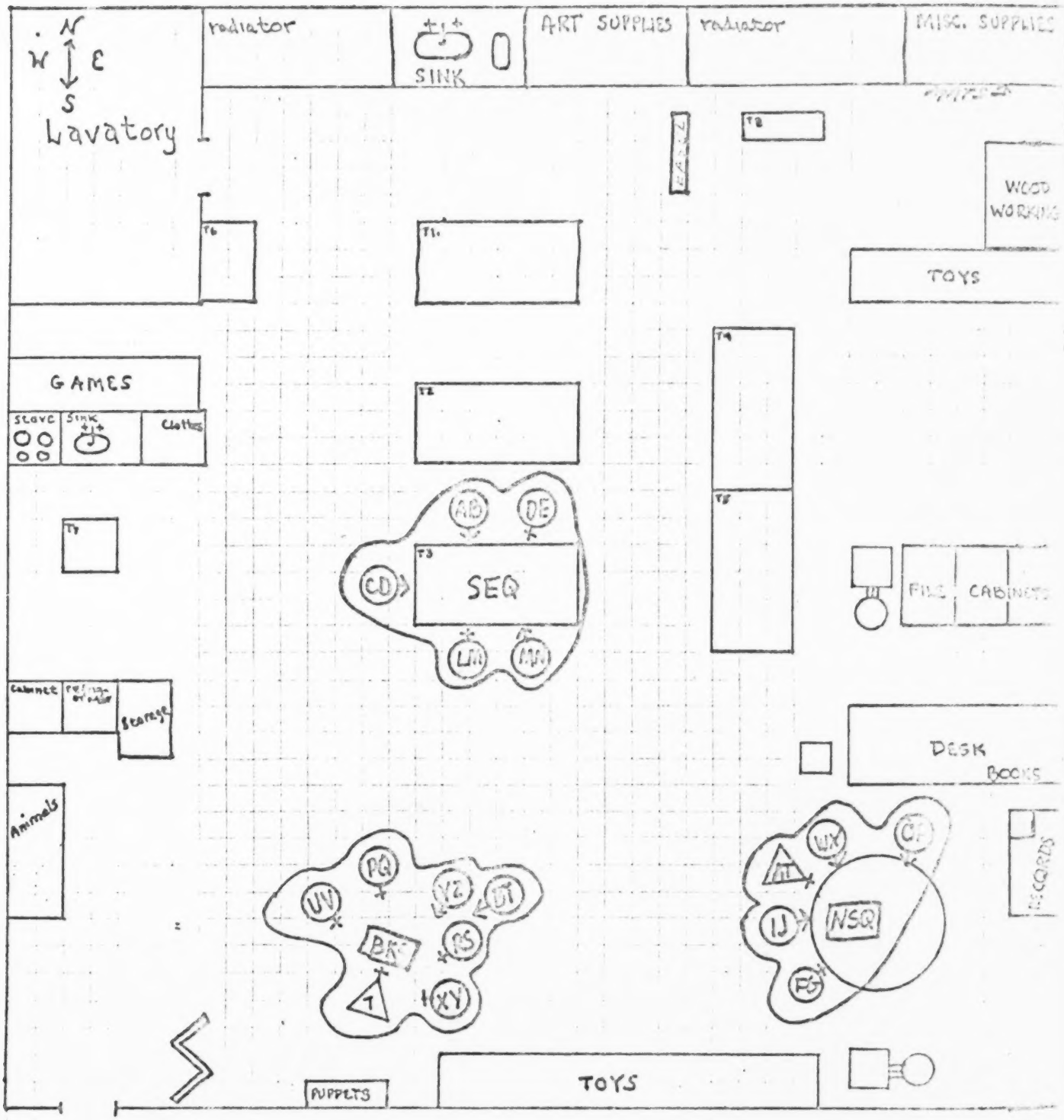
PLACE: _____ DATE: _____ OBS: _____

TIME: 10:45 ELAPSED TIME: _____ OSOT No.: 9 ACTIVITY: _____



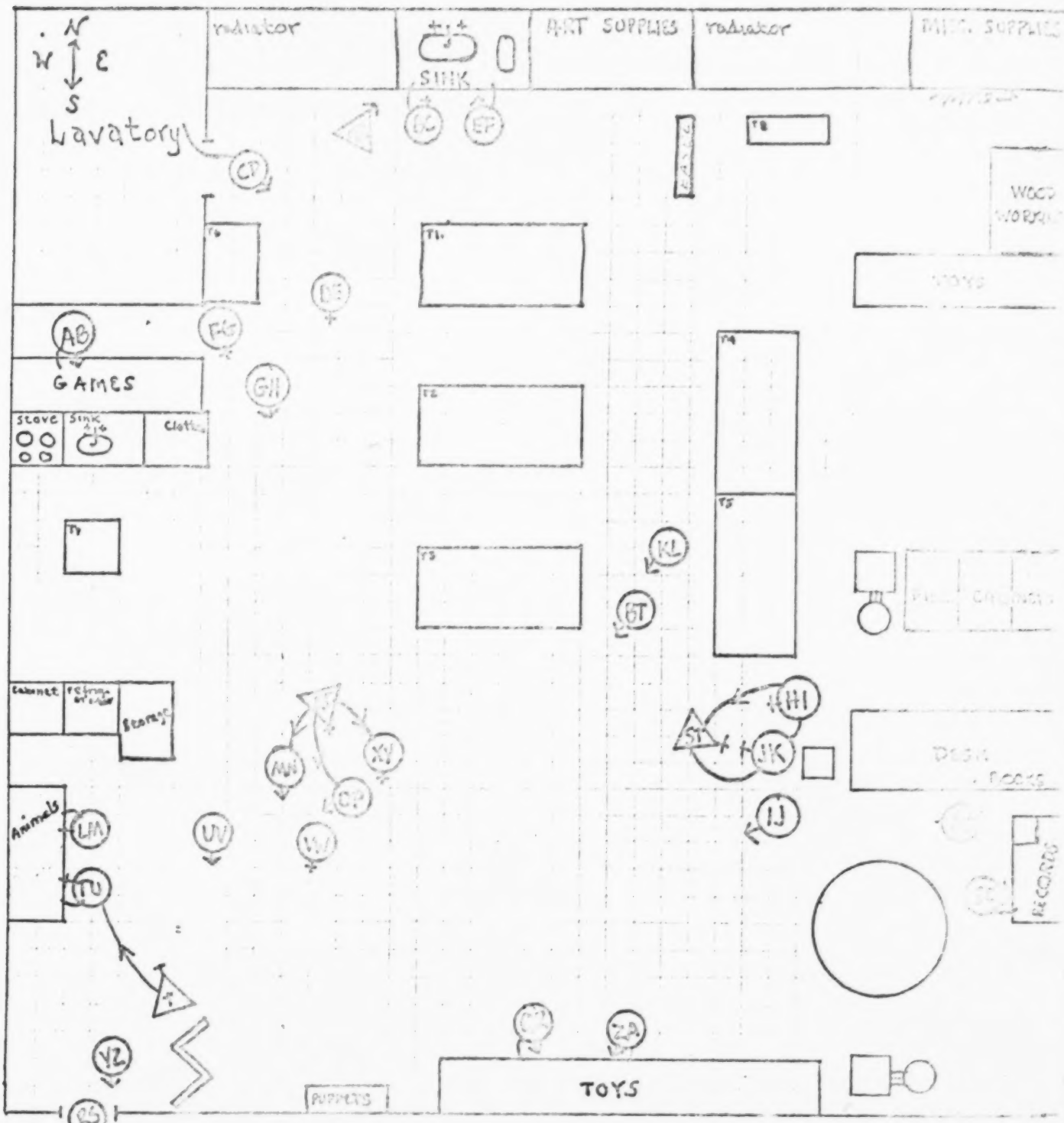
PLACE: _____ DATE: _____ OBS: _____

TIME: 11:00 ELAPSED TIME: _____ OSOT No.: 10 ACTIVITY: Small Group



PLACE: _____ DATE: _____ OBS: _____

TIME: 11:30 ELAPSED TIME: _____ OSOT No.: 11 ACTIVITY: _____



PLACE: _____ DATE: _____ OBS: _____

TIME: 12:00 ELAPSED TIME: _____ OSOT No.: 12 ACTIVITY: _____

2. DATA ANALYSIS

a. OSOT DATA CONVERSION FORM - (INDIVIDUAL)

b. OSOT DATA SUMMARY FORM - INDIVIDUAL LOCATION - ACTIVITY

c. OSOT DATA SUMMARY FORM - GROUP MATERIAL INTERACTION-INVOLVEMENT

OSOT DATA CONVERSION FORM
INDIVIDUAL

CLASSROOM _____ STUDENT SC _____

DATE AND TIME	LOCATION	ACTIVITY	MATERIAL INTERACTION	INVOLVEMENT	SOCIAL INTERACTION	ATTENTION
5/6/70						
8:47	17/21	4	NO	0	0	0
9:00	21	1	NO	0	1	2
9:05	21	1	ART	1	0	0
9:35	21	1	BKS	1	5	1
10:00	13	1	SEQ	1	0	0
10:12	13	1	SEQ	1	0	0
10:18	21	1	FOO	1	4	1
10:30	21	1	FOO	1	4	1
10:45	17	1	REC	2	8	1
11:00	-	-	-	-	-	-
11:30	-	-	-	-	-	-
12:00	3	1	REC	1	0	0

OSOT DATA SUMMARY FORM-INDIVIDUAL
LOCATION-ACTIVITY

CLASSROOM _____ STUDENT SC _____

DATE AND TIME	LOCATION																										ACTIVITY LEVEL				
5/6/70	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	0	1	2	3	4
8:47																	X				X											X
9:00																					X								X			
9:05																					X								X			
9:35																					X								X			
10:00													X																X			
10:12													X																X			
10:18																					X								X			
10:30																	X				X								X			
10:45																	X												X			
11:00																											-					
11:30																											-					
12:00			X																										X			
TOTALS			1										2				3				6								9001			

OSOT Data Summary Form - Group
Material Interaction - Involvement

Example

Number of Observations _____
From _____ To _____ Classroom _____

Initial	# Obs.	Material Identification: UN	ANI	ART	AV	BKS	BLD	COM	CON	DOL	DRN	FLM	FOO	FRN	FSI	HKP	MUS	NAP	NSQ	PE	PLT	PLY	REC	SCI	SEQ	SND	SUP	TOY	TRN	WHL	WTR	NO	Involvement: 0	1	2	3	4
AB	12	1		1					2						1			2				1	*		2							3	1	9			
BC	10					3					3		2	1				1					*		2							1		9			
CD	12						1						2					1					*		3	1						4		8			
DE	11										2		2	1				1					-		2							2		8			
EF	10												2	1				1					*		3	2						1		9		1	
FG	12					1							2					1	1				*		5							2	1	6			
GH	10								1				1			1		2					*			3						2		10			
HI	10	1		1									1	1	1			1					*		3							1		2			
IJ	12					1				1			1					2	1				*		4							2		9			
JK	10			2						1	3		2					1					*									1		7	2	1	
KL	10			4		1							1					2					*			1						1		9			
LM	12		1	1										2				2					-		2	3						1		3	1		
MN	12												2					1	4				-		4							1		10		1	
NO	10	1		1		1							1	1	1			1					*		3									10		1	
OP	11	1				1			2				1					2	2				*									2		10			
PQ	11			1		2							2					1					-		2							3		6	2	1	
QR	10						2						2					1					-					1				4		4	3	1	
RS	11			1		2												2					*		3							3		2		1	
ST	9					1							2					1					-	1		2						2		6			
TU	10		1	3						2			1					1					-									2	1	4	1	1	
UV	12					2			1		1		3										*									5		7		1	
YW	9			1							3		2					1					*									2		5	2		
WX	11	1				1					1		2					1	3	1			*			1								7			
XY	12			5		2							1					2					-		1							1	1	3	1	1	
YZ	12					2							2					1					-		3	1						3		2	2	1	
ZA	10			1		2							2					1	1				-					1				2	1	1	2	1	
BL	12					2							2					1	2				*			3						2		6	1	1	
SC	10			1		1							2					1					*		2							2	1	2	2		
																																		7	1		
		5	2	25	0	23	3	0	6	4	14	0	43	7	3	1	0	35	17	1	0	1	11	1	44	17	0	2	0	0	0	54					

Totals